CALIFORNIA STATE BOARD OF HEALTH

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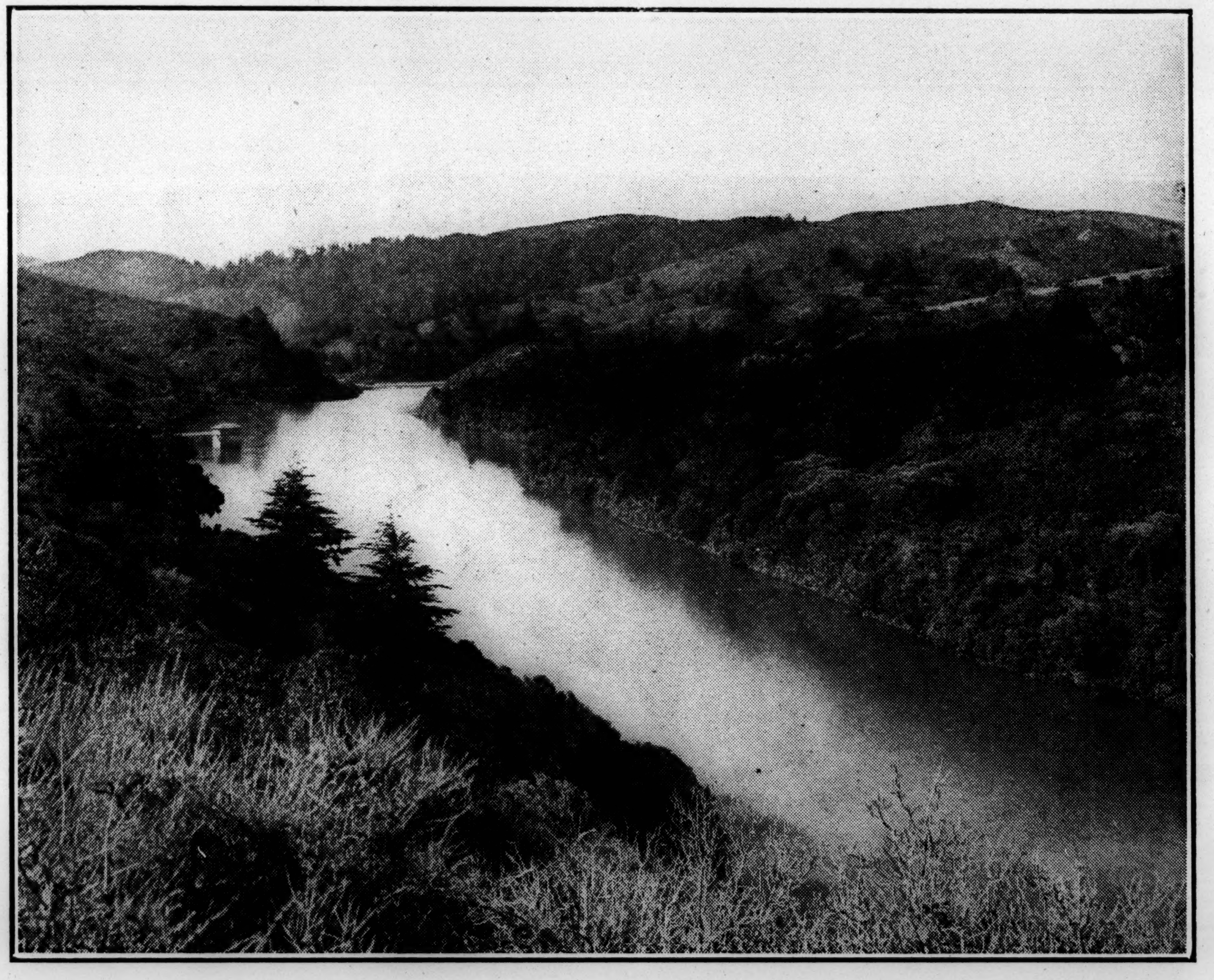

One of the storage reservoirs from which San Francisco draws its present water supply. Removed from all human habitation, this picturesque body of water lies nestled in the San Mateo hills, uncontaminated and crystal clear.

¶ HEALTH FROM SOCIAL VIEWPOINT
BUSINESS OF MALARIA CONTROL

¶ JANUARY, 1920

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PUBLIC HEALTH FROM A SOCIAL VIEWPOINT.

By E. S. Bogardus, Ph.D., Professor of Sociology, University of Southern California.

Successful public health work requires the hearty and continuous co-operation of five different groups of people. These are (1) the laboratory experts; (2) physicians; (3) social workers; (4) the needy; and (5) the public.

Laboratory Experts.

(1) The experiments of laboratory experts in bacteriology and related fields constitute a fundamental basis of public health work. It was the bacteriologist who discovered the cause of mankind's great enemy, tuberculosis, and of numerous other human scourges, such as typhoid fever. It is the public health analyst upon whom the community and state must rely in order to keep the water supply pure and the milk supply free from pathogenic bacteria. Let the bacteriologist in the municipal and state laboratories lose his sense of public responsibility and become inefficient, and multitudes will be subjected to the ravages of epidemics.

Physicians.

(2) If able physicians are not available for public health work, then inadequate medical procedure becomes the foundation of public health activities, and the efforts of efficient social workers in the field of public health become undermined. Public health committees and official boards of health must always include representatives of the best trained and socially visioned members of the medical profession. Medical knowledge is the most important cornerstone of the public health structure.

To the extent that a physician distinguishes between remedial and preventive practice and devotes his energies to the latter, he becomes a public health worker and a direct public servant. An increasing number of medical men are giving an increasing amount of attention to preventive medicine, which is one of the most important fields of public health.

To the degree that professional ethics among physicians becomes socialized, and permits and encourages the physician to report, for example, all cases of venereal disease to the public health authorities, and hence in the measure that the public health departments of our cities and states act upon venereal knowledge along well-defined lines, the cause of public health is well served. Medical ethics need to be measured continually by public health needs.

Nurses and Social Workers.

(3) The place of social workers in a public health program need not be dwelt upon here at length, for they have been the pioneers in making health knowledge common among the unfortunate poor. They have been the leaders in discovering the community causes of disease. They have shown how the poor can not of themselves and through personal hygiene measures successfully combat disease in overcrowded districts. They have made clear the helplessness of little children who are compelled to live in tuberculosis infected habitations. They have demonstrated to an apathetic public the close causal connection between bad housing conditions and tuberculosis.

The social workers receive health knowledge from the physician, bacteriologist, and other experts, and dispense it many times daily in small, preventive, and effective prescriptions. They multiply a hundredfold the preventive work of physicians. They spend their lives daily for the sake o better communities.

The social worker is the community's health diagnostician. He ha charted the communal dangers of mass ignorance concerning hygiene an sanitation. He has prescribed better food, better clothes, better houses, an better communal sanitation as public health measures.

Social service has developed specialized public health workers. Th school nurse, the special tuberculosis nurse, the hospital social worker, an other medical social workers have won public respect and fully recognize professional standing.

The Needy.

(4) The needy must co-operate. If they do not, the skill of the physicia and the efforts of the social worker will avail little. Although the need are the victims of overcongested living conditions, unsanitary housing, centuries of ignorance concerning health matters, unhealthy working conditions, nevertheless they must possess the will to live healthily. All the advantages of medical science and social service can be thrown away i careless, riotous living. Given all the favorable health conditions that scienc can guarantee, any person must still control his instinctive impulses and develop habits of moral living. Intemperance and sexual immoralit quickly vitiate public health measures.

To function well in a public health program the needy must assum individual responsibility, be willing to learn, and must help themselves to live healthily. If they close all the windows after the social worker leaves, or if they make no effort to observe the rules of personal and habitational cleanliness, they upset much that public health can do for them. The must respond readily to the instructions of the social worker.

The needy must co-operate with one another if public health work is to succeed. The needy live in such close quarters that carelessness on the part of one mother concerning her child who has contracted a contagious disease will bring on a neighborhood epidemic. The needy must possess the co-operative spirit. They must also be community spirited. To the extent that these standards do not exist or can not exist, public health is hindered.

The General Public.

(5) The general public must catch the spirit and purpose of public health activities. If the public fails to furnish sufficient money throug taxation, the efforts of the other four factors in public health will be handicapped. It requires money—which should come from the public exchequer—to keep the water supply of a city pure, to protect the milk supply, to collect garbage regularly and universally, to quarantine and fumigate properly, to provide sufficient health officers.

It is necessary that the public support health ordinances and laws. Not only are laws needed to safeguard every step that is gained in public health procedure, but the administration of these laws must be fearless and faithful. The health inspector alone can not successfully meet the greedy landlord; he must have the support of public opinion.

The members of the public who furnish the city's milk, meat, vegetables, and similar food necessities can hinder or help public health. If motivated by public spirit, they will furnish clean, fresh food at reasonable prices, and function extensively in meeting the health needs of a city.

Public action is needed in order to clinch community health propaganda. Public action alone can eliminate the breeding places of contagious diseases, such as tuberculosis or venereal diseases, and educate all the people up to co-operative health standards. It was federal action which freed the Panama Canal Zone from widespread disease. It will be federal action which will bring ultimate success to the public health work that is now being conducted by laboratory specialists, physicians, social workers, the needy, and local and state communities. Through the co-operation of all these factors, public health will conquer its present foes.

OCCURRENCE OF MALARIA AND ANOPHELINE MOSQUITOES IN MIDDLE AND SOUTHERN CALIFORNIA.

By **William B. Herms**, Associate Professor of Parasitology, University of California, and Consulting Entomologist of the California State Board of Health.

A statewide malaria-mosquito survey of California was begun in the spring of 1916[1] and carried on during the summer of that year and a portion of the following summer (1917), when the work was interrupted on account of the war, but again undertaken and completed during the summer of 1919. A report of the work done during 1916 in the northern third of the state has already been published.[2] It is the purpose of this report to present a summary of the work done in the middle and northern portions of the state.

The survey of the northern third comprised thirty-one counties with a total of 289 mosquito collections consisting of 2769 specimens, of which 38 per cent were Anopheline (62.8 per cent *A. quadrimaculatus,* 15.1 per cent *A. punctipennis* and 22.1 per cent *A. pseudopunctipennis*). The average annual malaria death rate for the ten-year period (1909–1918) for these counties was 4.9 per 100,000 population.

The survey of the middle portion of the state comprised twenty counties extending from the southern border of El Dorado, Sacramento, Contra Costa, Alameda and San Mateo counties to the Tehachapi Mountains, including the following counties grouped to accord more or less with the arrangement of the northern counties, viz:

A. San Joaquin Valley counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare.

B. Sierra counties: Amador, Calaveras, Tuolumne, Mariposa.

C. Plateau counties: Alpine, Inyo, Mono.

D. Coastal counties: Monterey, San Benito, San Luis Obispo, Santa Clara, Santa Cruz.

A total of 213 mosquito collections were made during the survey of these counties, consisting of 2806 mosquitoes, of which 31.1 per cent were Anopheline (46 per cent *A. quadrimaculatus,* 10.9 per cent *A. punctipennis* and 43.1 per cent *A. pseudopunctipennis*). The average annual malaria death rate for the ten-year period 1909-1918 for these middle California counties was 4.7 per 100,000 population.

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[1] Herms, William B., 1917. A State-wide Malaria-Mosquito Survey of California, Journ. Econ. Entomology, Vol. 10, No. 3, pp. 359–370.

[2] Herms, William B., 1919. Occurrences of Malaria and Anopheline Mosquitoes in Northern California. U. S. Public Health Reports, Vol. 34, No. 29, July 18, 1919, pp. 1579–1587.

The following counties comprise that portion of the state designated as southern California in this report, viz:

A. Coastal counties: Los Angeles, Orange, Riverside, Santa Barbara, San Diego, Ventura.

B. Desert: Imperial, San Bernardino.

A total of 71 mosquito collections were made in southern California (eight counties), consisting of 814 mosquitoes, of which 49.6 per cent were Anopheline (30.5 per cent *A. quadrimaculatus*, .2 per cent *A. punctipennis* and 69.3 per cent *A. pseudopunctipennis*). The average annual malaria death rate for the ten-year period 1909-1918 for this portion of the state was .9 per 100,000 population.

The malaria death rate by counties, as well as the occurrence of mosquitoes, is presented in the following tables.

TABLE I.

Number of Deaths From Malaria and Average Annual Death Rate Per 100,000 Population for Middle California for Ten Years, 1909-1918, Inclusive.

	Population[1]			Death from malaria			Malaria death rate per 100,000 (annual)		
	1909-1913	1914-1918	1909-1918	1909-1913	1914-1918	1909-1918	1909-1913	1914-1918	1909-1918
San Joaquin Valley counties—									
Fresno	401,408	497,094	898,502	23	24	47	5.6	4.8	5.2
Kern	201,567	255,327	456,894	16	19	35	7.9	7.4	7.6
Kings	85,040	101,140	186,180	23	5	28	27.0	4.8	15.0
Madera	43,065	48,140	91,205	1	1	2	2.3	2.1	2.2
Merced	79,370	94,390	173,760	11	4	15	13.9	4.2	8.6
San Joaquin	263,003	301,684	564,687	21	6	27	8.0	1.9	4.8
Stanislaus	120,547	153,386	273,933	7	4	11	5.8	2 6	4.0
Tulare	187,640	230,844	418,484	18	10	28	9.6	4.3	6.7
Totals	1,381,640	1,682,005	3,063,645	120	73	193	8.7	4.3	6.3
Sierra counties—									
Amador	45,593	45,430	91,023	13	3	16	28.5	6.6	17.6
Calaveras	46,018	45,855	91,873	8	7	15	17.4	15.2	16.3
Tuolumne	49,990	49,895	99,885	1	2	3	2.0	4.0	3.0
Mariposa	19,841	19,780	39,621	0	0	0	0	0	0
Totals	161,442	160,960	322,402	22	12	34	13.6	7.5	10.5
Plateau counties—									
Alpine	1,561	1,545	3,106	0	0	0	0	0	0
Inyo	36,460	43,035	79,495	1	0	1	2.8	0	1.3
Mono	10,220	10,210	20,430	0	0	0	0	0	0
Totals	48,241	54,790	103,031	1	0	1	2.1	0	.9
Coastal counties—									
Monterey	123,646	135,710	259,356	0	1	1	0	.7	.4
San Benito	41,066	44,631	85,697	2	0	2	4.8	0	2.3
San Luis Obispo	98,595	105,546	204,141	3	2	5	3.0	1.9	2.4
Santa Clara	431,965	491,010	922,975	3	3	6	.7	.6	.6
Santa Cruz	133,532	145,248	278,880	5	1	6	3.7	.7	2.1
Totals	828,804	922,145	1,751,049	13	7	20	1.6	.8	1.1
Grand totals	2,420,127	2,819,900	5,240,127	156	92	248	6.4	3.2	4.7

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[1] The population figures given are the total added populations of each year during the period and are not the actual population. These figures are used in order to compute more conveniently the annual death rates for the periods which they cover.

TABLE II.

Number of Deaths From Malaria and Average Annual Death Rate Per 100,000 Population for Southern California for Ten Years, 1909-1918, Inclusive.

	Population[1]			Death from malaria			Malaria death rate per 100,000 (annual)		
	1909-1913.	1914-1918.	1909-1918.	1909-1913.	1914-1918	1909-1918	1909-1913.	1914-1918	1909-1918.
Coastal counties—									
Los Angeles	2,724,900	3,570,045	6,294,945	38	14	52	1.3	.4	.8
Orange	181,198	218,515	399,713	2	1	3	1.0	.5	.7
Riverside	183,757	226,287	410,044	0	5	5	0	2.2	1.2
Santa Barbara	144,077	166,365	310,442	3	0	3	2.1	0	1.0
San Diego	328,298	411,579	739,877	3	2	5	.9	.5	.7
Ventura	94,173	104,245	198,418	2	2	4	2.1	2.0	2.0
Totals	3,656,403	4,697,036	8,353,439	48	24	72	1.3	.5	.9
Desert counties—									
Imperial	72,555	90,960	163,515	3	3	6	4.1	3.3	3.6
San Bernardino	301,135	373,990	675,125	1	0	1	.3	0	.1
Totals	373,690	464,950	838,640	4	3	7	1.7	.7	.8
Grand totals	4,030,093	5,161,986	9,192,079	52	27	79	1.3	.5	.9

[1] The population figures given are the total added populations of each year during the period and are not the actual population. These figures are used in order to compute more conveniently the annual death rates for the periods which they cover.

TABLE III.

Occurrence and distribution of Anopheline mosquitoes in middle California, based on results of malaria-mosquito survey made in 1917 and 1919.

	Number of collections made	Total number of mosquitoes of all species collected	Total number of Anophelines	Total number of A. quadrimaculatus	Total number of A. punctipennis	Total number of A. pseudopunctipennis	Total per cent of Anophelines	Total per cent of A. quadrimaculatus	Total per cent of A. punctipennis	Total per cent of A. pseudopunctipennis	Annual malarial death rate per 100,000 pop.; av for 10 yrs.
San Joaquin Valley counties											
Fresno	23	238	33	18	12	3	14	54	36	10	5.2
Kern	16	270	49	15	1	33	18	31	2	67	7.6
Kings	10	228	44	25	2	17	10	57	5	38	15.0
Madera	9	127	33	14	0	19	26	42	0	58	2.2
Merced	28	469	200	122	12	63	43	61	6	33	8.6
San Joaquin	32	356	113	93	2	18	32	82	2	16	4.8
Stanislaus	9	123	33	14	1	18	27	42	3	55	4.0
Tulare	22	401	140	49	37	54	35	35	26	39	6.7
Total	149	2,212	645	350	67	228	29.1	54.3	10.4	35.3	6.3
Sierra counties—											
Amador	3	30	7	0	7	0	23	0	100	0	17.6
Calaveras	4	37	29	0	3	23	78	0	10	90	16.3
Tuolumne	6	63	15	0	7	8	19	0	47	53	3.0
Mariposa	6	58	31	0	0	31	52	0	0	100	0
Total	19	188	82	0	17	65	43.1	0	20.7	79.3	10.5
Plateau counties—											
Alpine	2	14	0	0	0	0	0	0	0	0	0
Inyo	5	42	0	0	0	0	0	0	0	0	1.3
Mono	4	17	0	0	0	0	0	0	0	0	0
Total	11	73	0	0	0	0	0	0	0	0	.9
Coastal counties—											
Monterey	5	22	19	3	0	16	87	16	0	84	.4
San Benito	4	47	28	9	0	19	60	32	0	68	2.3
San Luis Obispo	7	66	39	15	0	24	59	38	0	62	2.4
Santa Clara	14	170	46	21	11	14	27	46	24	30	.6
Santa Cruz	4	28	14	4	0	10	50	29	0	71	2.1
Total	34	333	146	52	11	83	43.8	35.6	7.5	56.8	1.1
Grand total	213	2,806	873	402	95	376	31.1	46.0	10.9	43.1	4.7

TABLE IV.

Occurrence and distribution of Anopheline mosquitoes in southern California, based on results of malaria-mosquito survey made in 1917 and 1919.

	Number of collections made	Total number of mosquitoes of all species collected	Total number of Anophelines	Total number of A. quadrimaculatus	Total number of A. punctipennis	Total number of A. pseudopunctipennis	Total percent of Anophelines	Total per cent of A. quadrimaculatus	Total per cent of A. punctipennis	Total per cent of A. pseudopunctipennis	Annual malarial death rate per 100,000 population; average for 10 years
Coastal counties—											
Los Angeles	9	55	2	0	0	2	4	0	0	100	.8
Orange	3	18	9	8	0	1	50	90	0	10	.7
Riverside	8	117	89	43	1	45	76	48	1	51	1.2
Santa Barbara	9	98	37	1	0	36	38	3	0	97	1.0
San Diego	20	258	140	13	0	127	54	9	0	91	.7
Ventura	13	182	101	49	0	52	55	48	0	52	2.0
Total	62	728	378	114	1	263	51.9	30.2	.2	69.6	.9
Desert—											
Imperial	5	35	0	0	0	0	0	0	0	0	3.6
San Bernardino	4	51	26	9	0	17	51	35	0	65	.1
Total	9	86	26	9	0	17	30	35	0	65	.8
Grand total	71	814	404	123	1	280	49.6	30.5	.2	69.3	.9

TABLE V.

Table of summaries showing occurrence and distribution of Anopheline mosquitoes in California and the average annual malaria death rate per 100,000 population.

	Number of collections made	Total number of mosquitoes of all species collected	Total number of Anophelines	Total number of A. quadrimaculatus	Total number of A. punctipennis	Total number of A. pseudopunctipennis	Total percent of Anophelines	Total per cent of A. quadrimaculatus	Total per cent of A. punctipennis	Total per cent of A. pseudopunctipennis	Annual malarial death rate per 100,000 population; average for 10 years (1909-1918, inclusive)
Sacramento Valley Counties*	97	1,063	560	460	38	62	52.7	82.1	6.8	11.1	10.9
San Joaquin Valley Counties	149	2,212	645	350	67	228	29.1	54.3	10.4	35.3	6.3
Sierra Counties (northern)	48	330	139	22	93	24	42.1	15.8	66.9	17.3	9.1
Sierra Counties (middle)	19	188	82	0	17	65	43.1	0	20.7	79.3	10.5
Plateau Counties (northern)	15	239	28	28	0	0	11.7	100	0	0	3.5
Plateau Counties (middle)	11	73	0	0	0	0	0	0	0	0	.9
Coastal Counties (northern)	78	637	120	21	11	88	18.8	17.5	9.1	73.4	.9
Coastal Counties (middle)	34	333	146	52	11	83	43.8	35.6	7.5	56.8	1.1
Coastal Counties (southern)	62	728	378	114	1	263	51.9	30.2	.2	69.6	.9
Northern California	289	2,769	1,052	631	159	232	38	62.8	15.1	22.1	4.9
Middle California	213	2,806	873	402	95	376	31.1	46.0	10.9	43.1	4.7
Southern California	71	814	404	123	1	280	49.6	30.5	.2	69.3	.9
California (grand total)	573	6,389	2,329	1,186	255	888	36.4	50.9	11.0	38.1	2.9

*Summary for these counties as well as other northern groups taken from report on northern California, loc. cit.

Summary and Conclusions.

Comparing the average annual death rate per 100,000 (Table V) of northern California and middle California it will be seen that the rate is almost the same, namely 4.9 for the former and 4.7 for the latter. Furthermore, the percentage of Anophelines taken in both divisions is not widely divergent, *i.e.,* 38 per cent in the former and 31.1 per cent in the latter, and of these *A. quadrimaculatus* and *A. punctipennis* combined represented 77.9 per cent of the total in the northern division and 56.9 per cent in the middle division, the remaining being *A. pseudopunctipennis,* believed to be negligible in their relation to malaria. This stands in rather striking contrast to the conditions in southern California, where the average annual malaria death rate is only .9 per 100,000 population, and where 49.6 per cent of the mosquitoes collected were Anopheline, of which 69.3 per cent were *A. pseudopunctipennis.* It will, furthermore, be seen that the average number of mosquitoes per collection for these two divisions (northern and middle) was 9.9 for northern California and 13.1 for middle California, indicating a greater abundance of mosquitoes for the latter, but it is interesting to note that the relative number of *A. quadrimaculatus* and *A. punctipennis* combined per collection was very similar, namely 3.6 for the northern area and 4.1 for the middle area, corresponding more or less closely in proportion to the malaria death rate, and that the average number of mosquitoes per collection for southern California was 10.1, while the average number per collection of *A. quadrimaculatus* and *A. punctipennis* combined was only 1.7 and the malaria death rate .9 per 100,000.

Although the San Joaquin Valley is commonly regarded as not greatly unlike the Sacramento Valley topographically, it will be seen that the annual malaria death rate for the latter is almost twice as high as the former, namely 6.3 per 100,000 for the San Joaquin and 10.9 for the Sacramento. It would appear that this high rate for the latter is explained by the high rate of effective Anopheline carriers, *i.e.,* 46.6 per cent of all mosquitoes taken in the Sacramento Valley were *A. quadrimaculatus* and *A. punctipennis* combined, and only 18.8 per cent of all were of these two species in the San Joaquin Valley.

While the two groups of Sierra counties, northern and middle, show an approximately equal malaria death rate, namely 9.1 for the former and 10.5 for the latter, there is much divergence in the Anopheline mosquito population, as far as collections were made. Owing to a time limit in carrying on the survey during 1919, the middle Sierra counties were not as well covered as had been contemplated, and in the second place Mariposa County, herein included, represents a strong transition, both in faunal and topographic conditions, factors which are not easily overcome in a classification based on county lines. In spite of this there is, nevertheless, a high percentage of *Anopheles punctipennis.*

The coastal counties, northern, middle and southern, show a much more consistent rate, both for malaria and for Anophelines, *i.e.,* a very low malaria rate and a very high rate of *A. pseudopunctipennis,* the predominant Anopheline.

That the relation between potentially effective Anopheline carriers alone and the malaria rate should not be pressed too hard is indicated by the fact that the combined *A. quadrimaculatus* and *A. punctipennis* rate for the San Joaquin Valley stands at 18.8 per cent, with a malaria death rate of 6.3 per 100,000 population, as compared with southern California with a rate of 15.2 per cent (*A. quadrimaculatus* and *A. punctipennis*) and a malaria death rate of only .9 per 100,000. In other words, if the potentially effective Anopheline rate alone were a sufficient indicator of malaria incidence, southern California should have a much higher rate than it actually has. This seeming discrepancy is readily explained by the fact that the two areas in question are in reality not comparable, owing to divergent fundamental physical factors which control biological phenomena. For example, one often travels many miles and tries many times in the more arid part of southern California before mosquitoes of any kind are encountered, and then they may be present in considerable numbers, *i.e.,* they occur in isolated and widely separated spots. Thus, for example, after many miles of travel and careful search without success, rather suddenly our party encountered enormous numbers of *Anopheles quadrimaculatus* at a hot springs resort in Riverside County, in a district removed from centers of population. Again, many of the Anophelines (*A. quadrimaculatus*) in this part of the state were taken in Ventura County, particularly near the city of Ventura, where the summer temperature is uniformly quite low, vitally influencing biological interrelationships. The occurrence of malaria is dependent upon a combination of factors in addition to the presence of potentially effective mosquito carriers, among them being temperature (both above and below a certain range), proximity of population to Anopheline foci, a sufficient production of Anophelines, *et cetera.*

In spite of seemingly favorable conditions and a careful search for specimens, no Anophelines were encountered in the Imperial Valley and in the upper Owens River Valley. It is quite probable that a more extensive search in both Imperial and Inyo counties may reveal the same.

From an examination of the average annual malaria death rates per 100,000 population for the several counties included in this report, it will be seen that the five highest middle California counties considering the ten-year period 1909-1918, inclusive, are Amador 17.6, Calaveras 16.3, Kings 15.0, Merced 8.6 and Kern 7.6. It is of interest to note the shifting in relative position when comparison is made, based on the two five-year periods 1909-1913 inclusive and 1914-1918 inclusive, namely for the period 1909-1913 inclusive, the order is: Amador 28.5, Kings 27.0, Calaveras 17.4, Merced 13.9 and Tulare 9.6, while for the period 1914-1918 inclusive, it is: Calaveras 15.2, Kern 7.4, Amador 6.6, Kings 4.8 and Fresno 4.8. Although a notable reduction has been made in the malaria death rate three of the five counties still head the list of middle California counties, and two of the five take rank with the ten most malarial counties in the state (five-year period 1914-1918, inclusive)—namely, Calaveras third and Kern ninth place. Amador, Kings and Fresno take their places with the fifteen most malarial counties in the state ranking eleventh, fourteenth and fifteenth, respectively.

THE BUSINESS OF MALARIA CONTROL.*

By STANLEY B. FREEBORN, Assistant Consulting Epidemiologist, State Board of Health, Berkeley.

Of primary consideration in the inauguration of any malaria control project is the source and adequacy of the funds. Not until 1915 were we supplied with legislation which took up the financial phase of the question. At that time the legislature enacted the present Mosquito Abatement District Act, which enables any district, whether entirely or partly incorporated, to form an abatement district on which county taxes not to exceed ten cents on a hundred dollars can be levied and devoted to the control of mosquitoes. This bill was originally framed to enable a wealthy residential district to combine for the control of non-malarial mosquitoes, but despite its inadequacy and non-adaptability to the malaria problem of the state it has been a wonderful improvement over our previous haphazard methods of finance and administration. The inadequacy is largely a matter of finance. Our civilian work of pre-war days from the period of 1910 to 1916 averaged in cost about 75 cents per acre for mosquito control. Although every new problem differs from every other in its treatment, it was found that an average cost, as stated above, could be estimated with surprising accuracy. Contrasted with these pre-war prices, let us consider the result of the decreasing purchasing power of the dollar on mosquito control. In order to get an average cost that is accurate it is necessary to consider more projects than I have actually been connected with during this period. For this reason I am including the projects with which I have been connected in the Army and at Anderson, in Shasta County, a number of typical projects information and cost data for which I am indebted to Mr. L. D. Mars of the United States Public Health Service. On twenty-one projects, varying greatly in the character of the work, the new work cost $1.80 per acre, the maintenance 21 cents per acre, and the oiling 52 cents per acre, a grand total of $2.53 an acre as contrasted with the 75 cents of the pre-war days; and it must be borne in mind that these latest figures are based on labor at $3.50 per day—the same labor for which we are paying today $4.50 and $5. In order to forestall a criticism that might be legitimately offered on this comparison of cost figures let me state that although nearly all of these projects were carried on under Army or United States Public Health Service management, the much talked of government "overhead" is not included, and the only status for criticism would be due to the fact that in the work included above the aim was always toward immediate control, whereas in civilian work the general aim is to extend the absolute control over a period of years, improving the conditions each year instead of attempting to establish complete control the first week of the campaign.

The Problem of Raising Funds.

With these figures in mind, let us see what we are able to realize through the administration of the Mosquito Abatement District Act. The average assessed valuation of improved agricultural land in California is $90 per acre, and, therefore, returns at the rate of 10 cents on a hundred dollars, as specified as the maximum rate in the bill, the sum of 9 cents per acre. Worse than this is the condition in some parts of the state where the necessity for funds is greatest; in one particular instance, in the Anderson-Cottonwood Irrigation District, the average assessed valuation is $45, returning the sum of

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*Read at the Eleventh Annual Conference of State, County and Municipal Health Officials, Riverside, October 20–24, 1919.

4½ cents per acre to do the work that would require $2.53. The natural solution of this difficulty would seem at the first glance to be to increase the tax rate. However, the district where the work is most badly needed are the least able to stand an increase in taxes, as the presence of malaria invariably leaves its imprint on the vitality, progressiveness and personal fortunes of the people, as well as on the value of the property of the affected community. One solution that has been employed in the past has been to include in the limits of the district a municipality, with its high assessed valuation and low cost of mosquito control, in order to create a surplus to handle the deficit incurred in the control work carried out in the surrounding rural districts that could not return a sum capable of controlling their own problem. This practice is, I believe, justifiable from the standpoint of the city involved, providing the tax levy supplies enough money to control the municipal mosquitoes satisfactorily and still leaves a surplus for the rural districts. The increased prosperity of the rural district will justify from a commercial standpoint this seemingly altruistic stand on the part of the city. Although this arrangement is ideal for a few localities, there still remains the difficulty of handling the districts where it is not possible to thus distribute the costs over a more valuable section. The first and greatest problem that the state must meet today in connection with an anti-malarial program is the source of adequate funds. Increased tax rates will defeat their own ends, as most districts have at the present time reached their economic limits along these lines. The appropriation by the state of a vast amount, sufficient to control the entire state, would not only stagger the legislature, but a program based on this idea would fall down for the lack of trained men capable of superintending the work. The two following possibilities present themselves at this time:

1. To pass legislation enabling a mosquito abatement district to do the work of mosquito control and have the bills footed by the responsible parties; and

2. To seek the appropriation by the legislature of a sum of money commensurate with the economic loss from malaria, payable over a period of years, to be used as subsidies for the control of the "sore spots" in rural California.

It is a striking fact that in a majority of the cases the breeding pools of the anophelines or malarial mosquitoes are furnished through the carelessness or negligence of some individual or corporation. It is almost safe to say that our anopheline mosquitoes favor water that has been turned from its natural course. In this connection, it is interesting to note that malaria has followed the use of water by artificial means throughout the state; first, in the gold mining sluices, and then in the irrigation projects. With the old type of mining sluice practically in the discard, let us turn to the irrigation projects. The misuse of water in these districts is appalling, both from the standpoint of the landowner and that of the water company. The majority of landowners in all new irrigation projects seem to take as their slogan that if "a little is good, more is better," with the result that more water is taken than can possibly be used successfully, and the overflow is simply shunted into some convenient depression to produce its quota of anophelines. This method of procedure is evidently encouraged by the water companies, judging from the example they set with their leaking banks, faulty headgates and flooded laterals. It is openly maintained by irrigation attorneys that there is no legal foundation upon which irrigation companies may base the expenditure of money for drainage. In other words, it is the sole object of an irrigation district or company to deliver water to a point on a man's land, and it is immaterial where the waste water or seepage proceeds after it has been delivered. Twenty-five per cent of the irrigated land of the United States is too wet for profitable agriculture, and it is safe to assume that a large percentage of this wet land is breeding mosquitoes. To irrigate without providing for drainage is like cashing a check with no money in the bank. Both practices spell trouble.

Hold Careless Land Holders Responsible.

At the present time, if an individual land holder sees fit to leave large areas of mosquito breeding pools on his property to produce myriads of mosquitoes capable of carrying infection among the members of his family and all his neighbors, or if the water company produces the same results through bad management or plain negligence, there is no recourse except through moral suasion or a lawsuit in the courts. Legislation which will put the cost of mosquito control upon the responsible parties is sorely needed in California. In considering possible legislation along this line it seems advisable to finance the mosquito abatement districts by means of a system of assessed benefits in which relief from responsibility is considered a benefit. A tentative scheme subject to such modifications as may be required by the legal aspects would be somewhat as follows:

Let the abatement districts be organized as they are at present, *i.e.*, by petition of 10 per cent of the voters to the county supervisors. Once organized and with the trustees appointed by the supervisors as at present, the trustees instead of presenting to the supervisors a budget based on the tax rate of 10 cents on a hundred dollars, would estimate the assessed benefits to the different tracts of the district placing responsibility where it belonged. This assessment should be approved, rejected or corrected by a state representative, preferably from the State Board of Health, and then submitted to the county supervisors, who would sit as a board of equalization. The benefit derived from legislation of this sort would be more far-reaching than to merely put the cost where it belonged, but would act as a stimulus for landowners and corporations to correct faulty conditions themselves rather than stand the tax the second year.

It has been suggested several times that legislation be enacted in which abatement work be done by some constituted authority and stand as a lien against the property. This might be helpful in some cases, but in real organized work it is necessary to have cash to work with before the operations are undertaken. Under the present law the tax falls equally on the just and the unjust, the landowner who exercises every precaution paying as much per acre as the one who heedlessly floods the surrounding country. This is particularly true and a growing problem in irrigation projects. With the suggested legislation, the careful rancher pays the lowest rate, probably a flat rate for all land not harboring mosquito breeding pools, and the careless owners pay in proportion to the amount of work that must be done on their property or for which they are responsible.

Malaria Costs State Two Millions Annually.

However, there are a few spots in the state, isolated and of limited area, where the cost of controlling the mosquitoes and malaria is prohibitory to the dwellers therein. In such cases, it is the duty of the state to advance funds for control work, not only to the inhabitants and to the other citizens of the state whose occupation calls them to these areas, but as a matter of prime importance in ridding the commonwealth of its reputation as a malarial state. Outside of a few well defined areas the malaria rate for the state is low and easily controllable by the communities affected if given proper legislative help. I am confident that if these sore spots could be cleaned up, the state malaria rate would show a decrease of 75 per cent, due to the improved health of the inhabitants and the imported cases contracted in these districts, but now attributed to other parts of the state. In nearly every case these districts where malaria has obtained such a foothold are unable to finance the work necessary for adequate control. The appropriation by the state of a sum equivalent to less than one year's loss from the presence of malaria, providing it was distributed over a series of years, would guarantee the control on consecutive years of one after another of these foci. A conservative estimate places the state's economic loss for one year from malaria at two millions, one-quarter of which expended over five years would render the malaria question of California almost negligible. It is very certain that no big business would allow a yearly leak of two millions that would be prevented by expenditure of half a million payable in five yearly installments. This is the status of affairs that is presented to the state at this time.

In discussing the procedure in our proposed legislation it was suggested that a representative of the State Board of Health should pass on the plans and assessments before submitting them to the supervisors. This suggestion was prompted first by the necessity of having a trained expert pass or help on the plans that are to be submitted by laymen to laymen, and, second, to establish a bond between the various mosquito abatement districts and some central agency like the State Board of Health. It is conceivable and has been possible that the superintendency of abatement districts has been awarded in the nature of a political plum, with the result that the fullest returns on the tax levy have not been realized. It is true that supervision of the districts by the State Board of Health would not mitigate this evil, but it would insure the partial education at least of the political superintendent and the expenditure of the money where it would do the most good.

The primary object of this paper has been to present just one phase of the question of malaria control in California. Although there are a multitude of problems still to be settled before we can control malaria with the maximum economy, we have enough information, the application of which will successfully reduce malaria. However, in order to apply this information, it is necessary to have available funds, the source of which is the subject of this paper, as it is considered the one most important problem to be met in a statewide anti-malarial program.

Summary.

1. The average rural district under the administration of the Mosquito Abatement District Act will return nine cents per acre in taxes.
2. Mosquito control work on 21 projects averaged to cost $2.53 per acre.
3. Legislation authorizing the levying of taxes for purposes of malaria control on the basis of assessed benefits with relief from responsibility constituting a benefit, will raise sufficient funds and place the cost on the responsible parties.
4. In a few rural districts which constitute the "sore spots" of malaria, the problem is too difficult to be handled by the taxpayers.
5. For these districts the state should appropriate a sum of money, payable on consecutive years, for the control of the work.

THE ECONOMICS OF CHILD WELFARE.*

By **ROYAL MEEKER**, United States Commissioner of Labor Statistics.

I suppose, because I am an economist, I am expected to point out the relations between economics, the dismal science, and child welfare, and incidentally to take up the cudgels for the dismal science.

Whether we discuss babies, baseball, bolshevism, or the binomial theorem we eventually come up against the fundamental philosophy of life—the meaning of creation. What is it all about? The discussions that have preceded me have very largely dealt with babies as potential labor power. Now that is rather a shocking idea when first we come up against it treated in that crude, brutal way. Shall we nurture our babies, bring them to maturity, for the purpose of creating the most efficient labor force? Shall we follow the economic interpreters of history in ascribing all power to the economic motive in the determination of human conduct? Shall we follow the efficiency managers and the scientific experts in laying down the principle that the education of the child must be the education that will make him the most efficient producer, so that we may get more product, so that more babies may be brought into the world so that more work may be done to produce more goods so that more babies may be brought into the world and so on *ad infinitum?*

That is the way the opponents of the economic interpretation of history and the opponents of scientific management generally state the matter, and of course it immediately arouses every ounce of opposition in all our natures, and we say "away with such theories, away with such doctrines; we will have none of them. We will have the education that will bring the child to its fullest development."

Now, what is the fullest development of the child? You see we are already right up against the philosophy of the whole thing. What is it all about? What is our fundamental philosophy of life? Without either subscribing to or opposing the economic interpretation of history it is at once apparent that child welfare is largely economic. If we include in the definition of the economic motive every desire that the human heart feels, then there is no escape from the economic interpretation of history. If we want to give a narrow definition of it, however, and confine the economic motive to the chasing of dollars for the purpose of satisfying our more immediate physical needs, if we hold that there are ethical motives and esthetic motives and instinctive motives that are more or less antithetical to the economic motive, even so we are bound to acknowledge that child welfare is very largely an economic problem, because ethical teachings, esthetic appeals, do not go very far on an empty stomach; they do not go very far with the children living under conditions of poverty and distress. We must at least have an economic background, even if we admit without further argument that economics do not include everything in the world and everything in the universe.

The science of economics has been called the dismal science by those who do not know anything about it. I will have to say that in defense of economics. I am not defending the early economic theorists, understand, but if economic science is dismal it is because of the exceedingly dismal character of the subject matter with which it deals—the subject matter being the human race.

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*An address delivered at the United States Children's Bureau Conference on Child Welfare, Washington, May 6, 1919.

Some men have been so bold and so foolish as to say that man is the only rational animal. I have never had evidence submitted to me sufficient to make me subscribe to that theory. For the most part and most of the time his actions are determined by the instincts of love, hate, fear, loyalty, and similar motives, which are the very reverse of rational. If man would only behave in a rational manner, Miss Lathrop and the Children's Bureau would be absolutely supernumeraries. We would not have any use for them, because children would be reared as they should be, so as to give them the fullest opportunity for development. Enlightened self-interest would take care of that. They would be reared in order to make them, if you please, the most efficient producers and attain the fullest possible development. There would not be any conflict between those two statements. It would be simply two different ways of stating the same thing. But man is anything but a rational animal. He is only momentarily and only fractionally rational. It is an axiom that adults are simply children of a larger growth.

Now, Miss Lathrop is engaged in the precarious task of trying to make her Children's Bureau and herself unnecessary. When she accomplishes the task that she is striving to accomplish, a children's bureau will not be necessary any more.

I take it that the Children's Bureau has been established for a purpose quite similar to that which brought about the establishment of the Bureau of Animal Husbandry. For many, many years we have taken a great deal of thought as to the upbringing of hogs, cattle, and horses. It is a very important thing. I am not saying a word against the Bureau of Animal Husbandry. It is a splendid thing. I am glad it was founded when it was, and I hope it will keep right on doing the excellent work it has been doing. I think hogs, cows, and horses should be given every encouragement to attain their fullest self-realization.

I do not mean to say that we utterly neglect our human babies, for that is not true, but we have not put enough gray matter into the consideration of what kind of upbringing children should be given in order to enable them to reach the fulfillment of the purposes of creation. Our Children's Bureau then is, in a way, a bureau of child husbandry, and it has for its purpose making itself useless. The Bureau of Labor Statistics is altogether different. I do not hold my job by any such uncertain tenure as Miss Lathrop, for we will have statistics with us always, even unto the end. I scarcely expect to continue my statistical efforts in Heaven, however, for statistics is just simply a means of aiding our vision so that we can see more clearly through the dark glass that surrounds us. You remember that St. Paul says, "Now we see through a glass darkly, but then face to face." When the dark glass is finally smashed, either by the statisticians or by the Almighty, it matters not which, statistics will no longer be necessary, for we will see face to face.

And while I am on the subject of statistics I wish to say, statistics are vitally important to the welfare of babies. Without the statistical investigations that the Children's Bureau has made under Miss Lathrop's very competent direction, we would not have a fraction of the knowledge that we now have of the needs for the proper upbringing of children. I may say incidentally that the statistical work of my own bureau has contributed somewhat to our knowledge of that subject.

We are here in a big hotel, and I think we consider it a very comfortable and safe abode, but we do not think, not for a single moment, of the engineering formulas, the tests of materials, many of which were worked out hundreds of years ago, that were used in the construction of this building for our comfort and convenience. We just take the building for granted without prying into the mathematical engineering formulas upon which our safety depends. We are now engaged in working out the mathematical engineering formulas which will give us the means of determining the adequacy of incomes. This fundamental work on the cost of living is essential in order to try to get at not what standards should be but what standards of living actually are. I have not yet tackled the job of telling the working people of the United States what they ought to wear, what houses they ought to live in, and what amusements they ought to take, how many moving pictures they should attend per annum, how many dances they should attend per annum, and all that sort of thing. That lies far, far in the future.

However, when you get these fundamental engineering calculations once worked out in acceptable form then we can begin on that job. In fact, I have tried to get the domestic economists interested in trying to formulate standards of what ought to be, but I have not succeeded very well as yet. I do not blame them for being shy of the problem. They are no more shy than I am. I do not like to assume dictatorial powers in the field of standardizing the family purchases. It is the most dangerous and the least inspiring work that lies before me.

The fundamental tables on the cost of living in some 20 cities that we have surveyed among those included in the country-wide survey of the cost of living, will appear in the "Monthly Labor Review" for May. Unfortunately it is not now in print, so it can not be distributed here. But I will send it to anyone interested in these figures. It does not contain any of these formulas, I promise you that. All that it will give you is the classified expenditures by the different groups of items for different income groups, from less than $900 to $2,500 and over. It will enable you to test out the accuracy of the statement made by Professor Ogburn that the larger the family the larger the income. Quite obviously the explanation of that is the more children the more workers. The income increases with the number of income earners.

It is extremely interesting to study the changes in the percentage distribution of expenditures with changes in the size of the family. It shows the influence of the babies upon expenditures. A wife, when she first gets married, spends, according to the tabulations worked out, about as much for clothes as the husband, in the workingman's family. Some of you may be surprised that a woman spends almost as much as a man. The accepted notion is quite to the contrary. But just as soon as the first baby comes her expenditure for clothes drops. When the next baby comes then it drops again. So evidently the wife has become absolutely—I do not like to say it but I do not know of any other term in which to express it—a domestic slave. She is absolutely tied to the home—to the house I mean, not the home. She has not clothes in which she can attend a meeting like this to be taught about statistics and economics and all the other things connected with child welfare. She can not even go to church unless she is willing to go in an attire that does not lend itself to display.

That is a very interesting thing, and as a matter of fact, in many, many incomes which I have studied I have noted that with the increase of the family every item of expenditure except food declines not merely in percentage but in absolute amounts. This means, of course, that comforts and even necessities must be sacrificed to meet the most pressing need, the need for food. Of course, that is only in the lower income groups, but that certainly indicates that something needs to be done to bridge this gap. It certainly indicates that it is worth while thinking about this thing that is so carelessly and complacently called the American standard of living. I am very curious to find out what under the sun this American standard of life is. I am willing to admit that the American standard of living is higher, is better than it is in other countries. I think we can show it is higher than in any other country of which we have statistics. Is it anything to boast of? I have not the nerve to boast about the American standard of living in the families to which I have referred. In fact, there is no American standard of living. There are as many American standards of living as there are different income groups and different sizes of family. That is, there are different amounts of expenditure varying with income and size of family for food, clothing, house room, house furnishings, health, insurance, and recreation. Recreation is just as much a necessity as is food and clothing. Some economic theorists who do not know anything about economic theory have held that amusement is a luxury, but it is as much a necessity as is food. The expenditure for care of health, including insurance of all kinds and amusements, in the family budgets that I have examined is wholly inadequate.

THE FOOD VALUE OF RIPE OLIVES.

By M. E. **Jaffa**, M.S., Consulting Nutrition Expert, California State Board of Health.

The ripe olive is too often considered merely as a relish, rather than as a food, in that it is classed among the pickles and condiments, whereas it should be classed among the foods. The significance of this statement will be better appreciated by a glance at the following table showing the analyses of the ripe olive, green olive, pickles, bread, rice, and potato.

	Water, per cent	Protein, per cent	Fat, per cent	Carbohydrate, per cent	Ash, per cent	Fuel value per pound, calories
Olive, ripe	69.60	2.00	21.00	4.00	3.40	958
Olive, green	78.41	2.43	12.90	1.78	4.48	598
Pickles	93.80	1.10	.40	4.00	.70	110
Bread	35.30	9.20	1.30	53.10	1.10	1,215
Rice—						
Raw	12.30	8.00	.30	79.00	.40	1,630
Boiled	72.50	2.80	.10	24.40	.20	525
Potato, edible portion—						
Raw	78.30	2.20	.10	18.40	1.00	385
Boiled	75.50	2.50	.10	20.90	1.00	440

Comparing the ripe and green olive, it will be noticed that the percentage of fat or oil in the latter is only about 60 per cent of that yielded by the former. This would appear to be, according to the chemical analysis, the main difference between the green and ripe fruit, which difference is further confirmed by the figures indicating the fuel value or calories per pound.

In this connection it should be stated that the figure for oil in the ripe olive is that which the ripe fruit should yield. Unfortunately, however, there are on the market a large number of olives labeled ripe olives which contain far too low a percentage of oil.

Furthermore, it may be said that the difference in oil does not indicate the whole difference between the two forms of fruit, because undoubtedly the nutriment in the ripe fruit is in a much more digestible and readily assimilable form than in the green. The green fruit is unripe and, therefore, to a certain extent immature. It is readily seen that it is to the interest of the consumer to buy the ripe olive rather than the green, in that he receives for his purchase far more nutriment in one case than in the other.

This, however, is not the only interesting point brought out by a study of the table. Bread is generally considered to contain, weight for weight, far more nutriment than is found in the olive, yet as far as the total food value of heat unit is concerned, it will be noted that in one pound of ripe olives you have practically three-fourths of the caloric value noted for bread, which value is, in the case of very large olives, increased to approximately the same as bread.

Again, if we compare the ripe olive with raw rice, the rice will rank far ahead in total food value—that is, in one pound of raw rice we have much more nutriment than in one pound of olives. If, however, we compare the rice as eaten with the ripe olive which is ready for consumption, it will be noticed that in one pound of ripe olives there is practically twice as much nutriment, if we take the calories as a basis for comparison, in the olive as in the rice. This is a point quite often lost sight of when comparing food values.

For instance, in a pound of dry macaroni there is far more nutriment than in a pound of ripe olives. Again, if we compare both foods in an edible condition, the case is different and the comparison is in favor of the olives in that in a pound of cooked macaroni we have about 400 calories, while in a pound of olives, edible condition, we have between 900 and 1000 calories. It is, therefore, seen that the ripe olive, as far as food value is concerned, compares very favorably with many of the ordinary foods.

It is not always correct, however, to compare food values on the basis of calories alone, because the real value of the food to the body depends on the ingredients more than the caloric value. For example, one pound of sugar contains 1820 calories, one pound of meat less than 1000, yet one would hardly say that one pound of sugar is equal to a pound of meat when the question of growth is concerned; and similarly with reference to olives. One pound of olives with 1000 calories, if we are considering growth and replacement of worn-out nitrogenous tissues, would not be worth to the body as much as a pound of meat with 1000 calories, but as a source of muscular energy the olives would be a most excellent supplement to foods such as meat or fish.

Summarizing in brief, then, it may be said that the ripe olive is a very valuable, palatable, and easily digestible form of food and should be considered as such and not as an accessory or condiment.

RED CROSS CLASSES IN HOME HYGIENE

By **Lillian L. White**, Director Department of Nursing, Pacific Division, American Red Cross, San Francisco.

After our dreadful experiences in the influenza last year, the Red Cross has realized that it should do something to help prepare our rural and isolated communities to not only guard against influenza, but triumphantly fight it should another visitation be manifested; so through the efforts of our field representatives, visits were made to a great many of our chapters and the real practical use of our Red Cross instruction in home hygiene and care of the sick was explained. We emphasized the fact that we did not wish to train women to become nurses, but to do just what the name implies; that is, teaching women and girls to do minor nursing in their own homes as the need arises and to intelligently understand and carry out the physician's orders should no one else be available.

We have been very fortunate in selecting 54 enrolled Red Cross nurses who are at the present time teaching 3000 women in 43 different chapters from Modoc County to San Diego, including among the students the graduate in home economics from Vassar and Mills College to the Spanish woman who offered her whole family of eight small children as subjects for demonstration. Of course, for the foreign women, or women who are not able to study from the textbook or to pass a written examination, we are using the modified course, in which the instructor has to drive her lesson home by sheer personality and practical demonstration.

One of our colored classes sent a most complimentary letter to the instructor, concluding by saying, "We feel that the association has not only been agreeable to us as a class, but profitable as individuals."

At Fort Bidwell, Modoc County, the classes, both regular and modified, are held in the hospital at the Indian School, special permission having been given by the superintendent of the school to use the room; among the classes is one of Indian girls, ranging from 14 to 18 years, which also includes two white teachers; of this class the instructor said, "I am proud of my Indian girls; they can make an almost perfect bed, and can do anything with their hands, but I have to be very careful in giving my theoretical work."

Our instructors are finding themselves constantly called upon to explain away prenatal influences, methods of disinfection, etc. We have not covered many of our isolated districts, but from the encouragement gained by the work started so far, we feel that it surely must be a worth-while piece of health instruction.

Classes in home hygiene and care of the sick are being held in the following counties:

County	Town
Alameda	Berkeley
	Alameda
	Oakland
Amador	Sutter Creek
	Ione
Butte	Oroville
	Gridley
Colusa	Williams
	Grimes
	Colusa
	Arbuckle
El Dorado	Placerville
	Georgetown
	Garden Valley
	Greenwood
	Cool
	Coloma
	Kelsey
Glenn	Willows
	Orland
	Hamilton City

Inyo	Bishop
	Big Pine
Lassen	Susanville
	Westwood
Los Angeles	Los Angeles
	San Pedro and Pasadena
Marin	Corte Madera
	Kentfield
Monterey	King City
	Salinas
	Jolon
Modoc	Cedarville
	Alturas
	Fort Bidwell
	Lake City
	New Pine Creek
Napa	Napa
Nevada	Nevada City
	Grass Valley
Plumas	Engel Copper Mine
	Greenfield
	Crescent Mills
	Taylorsville
	Quincy
	Meadow Valley
Riverside	Riverside
Solano	Benicia
	Vacaville and Vallejo
Sonoma	Petaluma
	Santa Rosa
Sacramento	Sacramento
San Diego	San Diego
	Chula Vista
San Francisco	San Francisco
Santa Clara	Palo Alto
Shasta	Redding
	Kennett
	Mammoth Mine
	Anderson
Sierra	Sierra City
	Sierraville
	Loyalton
	Downieville
	Allegheny
San Luis Obispo	Paso Robles
Tehama	Red Bluff
	Los Molinos
	Corning
Yuba	Marysville
Sutter	Yuba City

REGISTERED CATTLE AND REGISTERED BABIES.

Horse and cattle breeders owning ''blooded'' stock do not fail to have their animals ''registered.'' It adds to their value and is therefore justly regarded as highly desirable.

Contrasting this attitude with that of many careless parents, the Public Health Service gives the following reasons why baby's birth should be registered:

1. To establish identity.
2. To prove nationality.
3. To prove legitimacy.
4. To show when the child has the right to enter school.
5. To show when the child has the right to seek employment under the child labor law.
6. To establish the right of inheritance to property.
7. To establish liability to military duty, as well as exemption therefrom.
8. To establish the right to vote.
9. To qualify to hold title to, and to buy or sell real estate.
10. To establish the right to hold public office.
11. To prove the age at which the marriage contract may be entered into.
12. To make possible statistical studies of health conditions.

MONTHLY BULLETIN

CALIFORNIA STATE BOARD OF HEALTH

Devoted to the Prevention of Sickness and Death

Entered as second-class matter, August 15, 1905, at the post office at Sacramento, California, under the Act of Congress of July 16, 1894. Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917, authorized August 27, 1918.

Sent free, on request, to any citizen of California.

WILFRED H. KELLOGG, M.D., Secretary . . . Executive Officer
GUY P. JONES, Assistant to the Secretary . . . . . . Editor

Dr. Walter M. Dickie of Los Angeles has been appointed Director of the Bureau of Social Hygiene. Shortly after the organization of the Bureau in 1917, Dr. Dickie was appointed sanitarian and his elevation to the directorship of the bureau is an acknowledgment of his ability in this special line of work. Before entering the state service Dr. Dickie conducted a social hygiene program for Los Angeles County. Under his directorship California, the pioneer state in venereal disease control, is bound to maintain its prestige.

George D. Leslie, State Registrar and Director of the Bureau of Vital Statistics in the California State Board of Health since 1905, at which time the bureau was organized, died January 8, 1920, after an illness of several months. Mr. Leslie was a careful, conscientious worker, and his loss is keenly felt, not only by the California State Board of Health and the members of its staff, but by a very large number of registrars and public health workers throughout the state.

Ordinarily many unusual communications find their way to the office of the California State Board of Health, and during an influenza outbreak the number of these unusual communications is specially heavy. Following is an example of the sort of freakish letters that is being received now:

> ''Dear Friends. Board of Health
>
> I see in Paper Mayor Rolph Ask A $20.000 To fite Flu. I have Meadson that cures Flu In Day half one 2 Days I cure the Small-pox In 2 days One feaver Of any kind Tiphoid One Tiphoid Newmony Cure it In 12 Hours. I will Sell this fore $10.000. It is Ready to be tested.
>
> Yespetuly,
>
> ____________________''

Public health work pays. The Bureau of the Public Health Service has announced that during the last twenty years it has been possible to reduce the general death rate in the United States from 17.6 to 14.2. The Bureau's statement continues:

> "This represents a truly enormous saving of life. Had the conditions of twenty years ago prevailed during the year just past, some 350,000 more persons would have died than actually did die."

Sound health is our greatest personal and national asset, and disease is always more expensive than health. "Who winds up days with toil, and nights with sleep" has "the forehand and vantage of the king," if the latter suffers in body and mind. The real wealth of a nation does not consist in its money, in the volume of its trade, or in the extent of its dominion. These are only valuable insofar as they help to maintain a population and not only a portion of it—of the right quality; men, women and children possessing bodily vigor, alert mind, firm character, courage and self-control. This ideal can never be realized unless and until the medical men of the future train themselves to their essential share in its fulfillment, and while keeping this ideal in view see to it that every step taken is one which will be consistent with the complete scheme of the future.—Sir Arthur Newsholme.

It has come to the attention of the State Board of Health recently that certain individuals have been soliciting funds in various California communities for the construction of a tuberculosis sanitarium in another state. The association said to have planned the construction of this sanitarium is incorporated, and the so-called promoters are apparently working within the law. The scheme is so fanciful, however, shown by the admission that but $2,000 have so far been collected for an institution that will cost $200,000, with no provision for future maintenance assured, that the feasibility of it may be seriously questioned. California desires to take care of its own tuberculosis cases, and it is accomplishing definite results in caring for its own. It does not desire to be a party to any plan that will promote migration of persons suffering with tuberculosis. The board, therefore, advises Californians who desire to assist in the control of tuberculosis to place their contributions locally, where direct and tangible results may be seen.

"The maintenance of the growth of the individual is the chief requirement of the healthy growth of the state."

Communicable Disease

Frank L. Kelly, M.D., Director
Bureau of Communicable Diseases.

Diphtheria at Benicia.

On November 10, the health officer of Benica requested assistance in the control of diphtheria which had broken out in the schools of the city, some twenty cases having been reported. Because of the fact that the cases were scattered over a wide area, it was thought advisable to culture all children rather than to attempt to locate and culture the contacts only. Three hundred and eighty cultures were taken, seventy of which proved positive. The health officer continued to culture contacts as cases developed.

Diphtheria in Mayfield.

Because of the presence of diphtheria in the grammar school at Mayfield, the Director of the Bureau of Communicable Diseases made an investigation October 29. Cultures were taken from the children in the school who had been in contact with the cases in the grammar school. Altogether 90 cultures were taken, 11 of which proved positive. The health officer and school nurse were instructed to secure cultures from all persons who had been in contact with positive cases.

Diphtheria in Vallejo.

The Chief Bacteriologist of the Bureau conducted an investigation into diphtheria in Vallejo during the period October 29 and November 12. The disease was found to be so widespread that it was thought advisable to secure cultures from all of the school children in the primary and grammar grades. A total of 2110 cultures was taken, 285 of which were positive. The health officer, Dr. E. A. Petersen, worked very hard in the control of this epidemic and has been following up contacts diligently.

Division of Biological Examinations.

Report of Examinations Made by California State Hygienic Laboratory During Month of November, 1919.

Condition suspected	Positive	Negative	Inconclusive	Total
Anthrax		3		3
Diphtheria (diagnosis)	117	371	*38	526
Diphtheria (release)	198	297	†34	529
Diphtheria (special investigation)§	517	3,103	‡139	3,759
Dysentery	1	3		4
Gonococcus infection	34	69	42	145
Malaria	1	19		20
Meningitis	2			2
Paratyphoid	2		1	3
Rabies	5	5		10
Syphilis (Wassermann test)	82	562	55	699
Tuberculosis (sputum)	18	98		116
Tuberculosis (urine)		4		4
Typhoid (excreta)	1	14		15
Typhoid (Widal)	23	45	5	73
Typhus		1		1
Miscellaneous				3
Total				5,912

*36 no growth. †32 no growth. ‡138 no growth.

§Berkeley 57, Vallejo 2,396, Mayfield 90, Palo Alto 26, Benicia, 673, East Whittier 123, Pomona 361, and Los Angeles County 33.

Division of Epidemiological Investigation.

Epidemiological Investigations and Other Special Investigations During Month of November, 1919.

Main Laboratory at Berkeley:

An investigation of diphtheria in Vallejo.
An investigation of diphtheria in Benicia.
An investigation of scarlet fever in Oakland.
An investigation of plague in Oakland.
An investigation of smallpox in Oakland.
An investigation of plague in Oakland.
An investigation of chickenpox in Oakland.
An investigation of paratyphoid fever in Napa.
An investigation of smallpox in Napa.
An investigation of smallpox in Oakland.

Division of Parasitology.

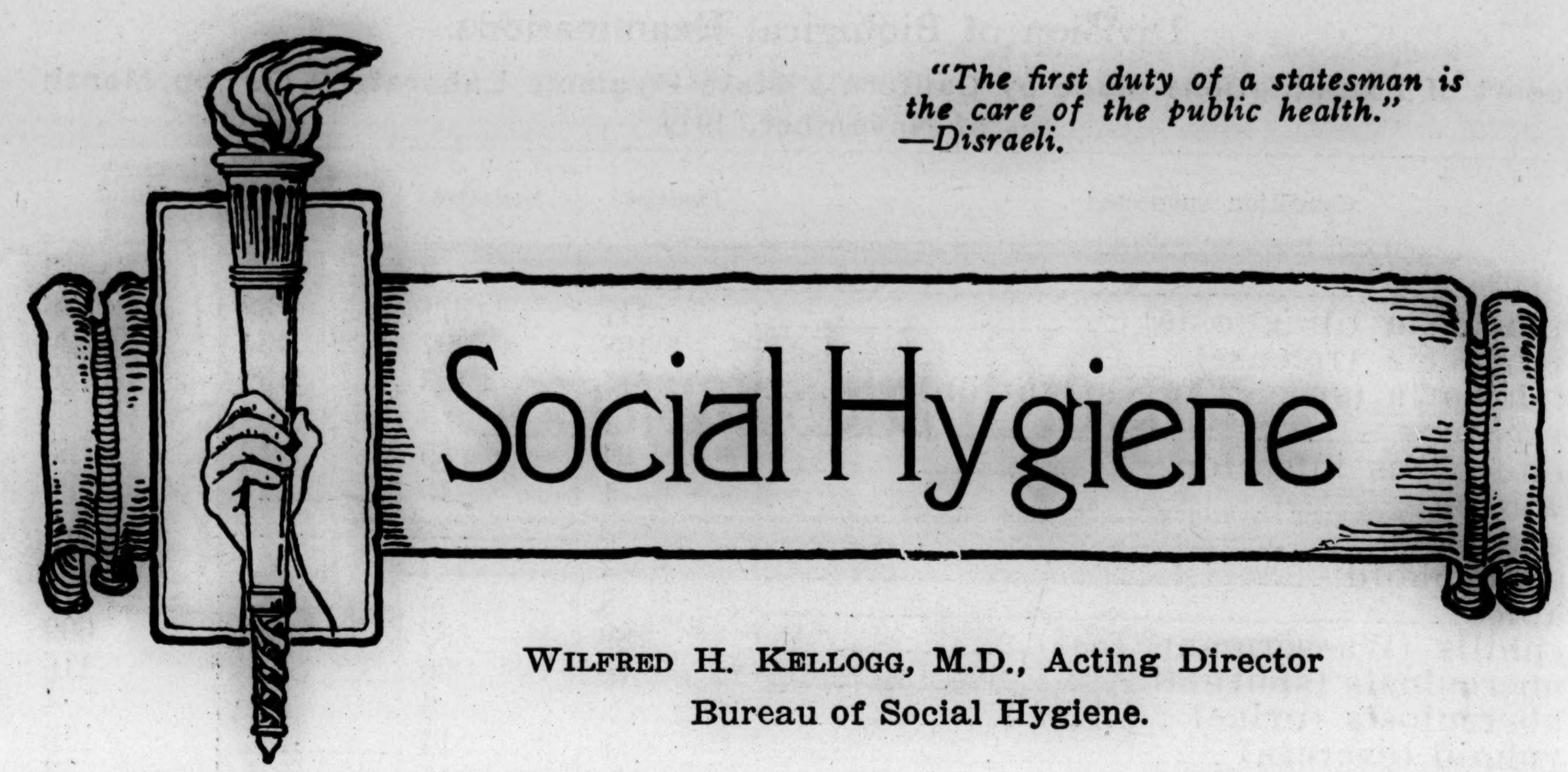
Summary of Examinations Made in Division of Parasitology During November, 1919.

	Examinations			Persons examined		
	Positive	Negative	Total	Positive	Negative	Total
For worms—						
Fecal examinations made	43	164	207	23	71	94
Hookworm	11	196		4	90	
Tænia solium	3	204		1	93	
Ascaris	1	206		1	93	
Oxyuris incognita	10	197		9	85	
Trichostrongylus orientalis	3	204		3	91	
Trichuris trichiura	15	192		10	84	
For Protozoa:						
Fecal examinations made	210	1	211	93	1	94
Chilomastix mesnili	18	193		9	85	
Giardia intestinalis	8	203		6	88	
Trichomonas intestinalis	11	200		4	90	
Endamœba coli	46	165		26	68	
Endamœba dysenteriæ*	103	108		50	44	
Endamœba nana	90	121		54	40	
For plant parasites:						
Blastocystis	118	193		61	33	
Phycomycete spore	16	195		14	80	
Yeasts	189	22		90	4	

1 sputum examination made; positive for Amœbæ.

*Per cent, 52+.

"The first duty of a statesman is the care of the public health."
—Disraeli.



Social Hygiene

Wilfred H. Kellogg, M.D., Acting Director
Bureau of Social Hygiene.

The necessity for rural education and medical service in social hygiene work was brought to the attention of the Bureau last month through an outbreak of gonorrhea in one of the smaller communities of the bay region. Among a group of children in one school sixteen cases in children of the average age of ten years were found infected. The assistance of members of the staff of the Bureau of Social Hygiene was requested and the situation was rapidly cleared up.

During this month, Santa Clara County has broken ground for an isolation hospital in which venereal disease cases will be cared for.

Dr. Wm. C. Hassler, City Health Officer of San Francisco, reports that he has obtained $10,800 from the Interdepartmental Social Hygiene Board for the maintenance of Ward L, which is the detention ward in the San Francisco Hospital. Dr. Hassler has demonstrated the value of the work accomplished in this ward, enabling him to get special funds provided by the Interdepartmental Board. Other communities in the state can no doubt qualify similarly and secure the same sort of assistance.

Following is part of the educational work done during the month:

Number of requests for literature	134
Number of pamphlets distributed	6,628
Number of lectures given	11
Total attendance at lectures	835
Number of films shown	3
Total attendance at above	498
Number of days showing exhibit	1
Attendance at above	100
Number of placards posted	105

ARSENOBENZOL DISTRIBUTED DURING MONTH OF NOVEMBER, 1919.

San Francisco Health Department	108
Los Angeles Health Department	100
Stanford University Clinic, San Francisco	85
Los Angeles County Hospital	70
Boyle Avenue Dispensary, Los Angeles	60
San Bernardino County Clinic	50
Kern County Hospital	50
San Francisco Hospital	50
San Diego County Clinic	50
Selwyn Emmett Graves Dispensary, Los Angeles	50
University of California Hospital, San Francisco	48
Fresno County Hospital	48

Good Cheer Club Clinic, San Jose	48
Fresno City Clinic	30
Santa Barbara Cottage Hospital	24
Pasadena Dispensary	20
Sacramento Health Department	20
San Francisco Polyclinic	20
Riverside Clinic	12
Alameda County Public Health Center	6
Berkeley Dispensary	2
	951

TREATMENT REPORTS RECEIVED.

206	patients received 1 dose	206
144	patients received 2 doses	288
96	patients received 3 doses	288
52	patients received 4 doses	208
7	patients received 5 doses	35
4	patients received 6 doses	24
3	patients received 7 doses	21
512		1,070
	Ampoules wasted	18
	Ampoules returned unused	100
		1,188

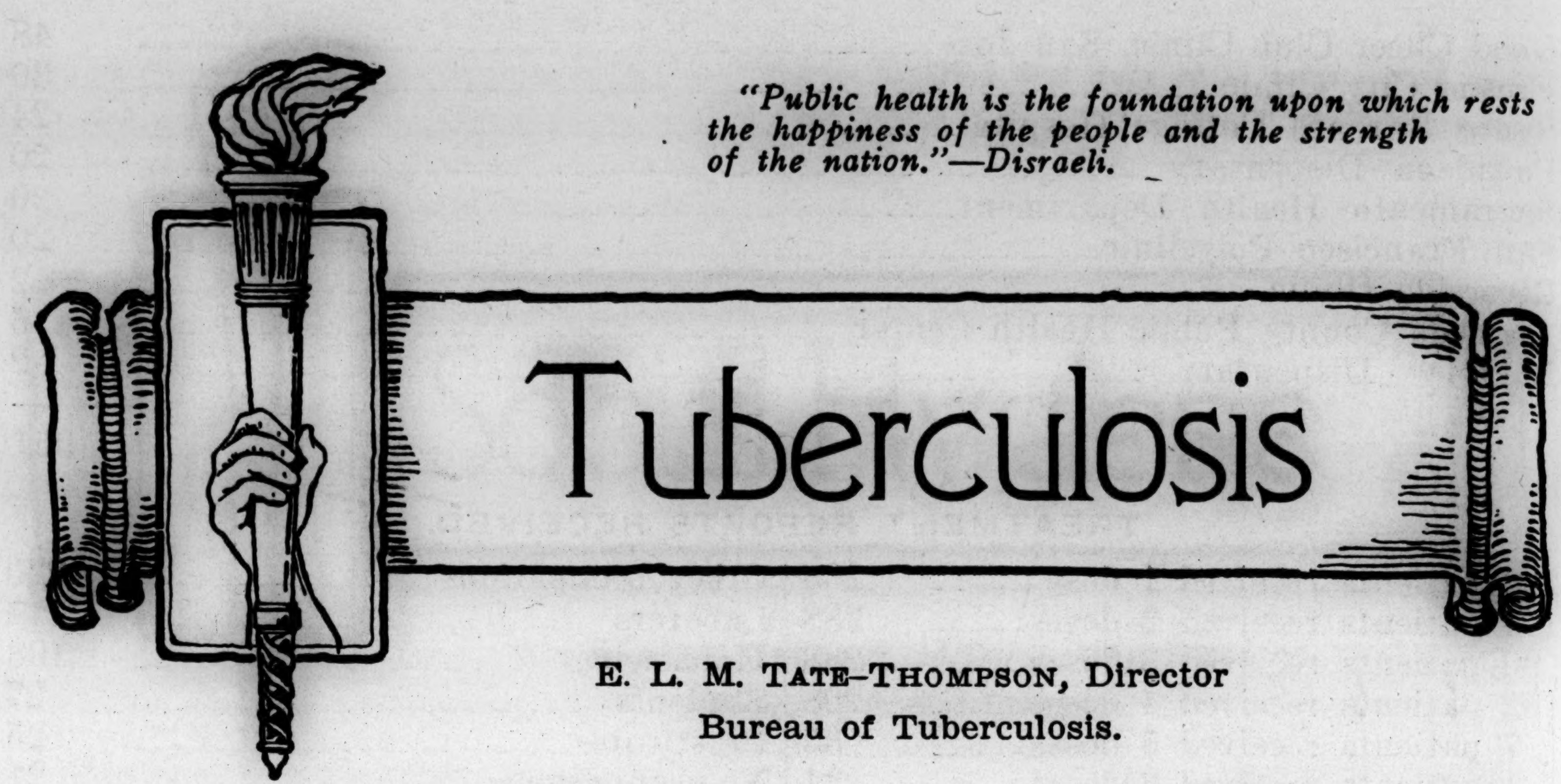
Other occupations	220
Laborers	111
Housewives	108
Students	27
Prostitutes	25
No occupations	21
	512
Males	301
Females	211
	512

Patients Treated.

San Francisco Health Department Clinic	88
Los Angeles County Hospital	60
Stanford University Clinic, San Francisco	58
Temple Block, Los Angeles	58
Boyle Avenue Dispensary, Los Angeles	34
Good Cheer Club Clinic, San Jose	33
Selwyn Emmett Graves Dispensary, Los Angeles	32
Santa Clara County Hospital	19
San Diego County Clinic	18
Stockton City Clinic	17
Los Feliz Hospital, Los Angeles	16
Fresno County Hospital	13
Pasadena Dispensary	11
Kern County Hospital	11
Santa Barbara Cottage Hospital	8
Fresno City Clinic	8
Mission Valley Hospital, San Diego	7
San Joaquin County Hospital	7
Sacramento County Hospital	7
Alameda County Public Health Center, Oakland	5
Arroyo Sanitarium, Livermore	2
	512

Total number of ampoules distributed		16,603
Total number of treatment cards received	15,789	
Total number of treatment cards distributed and not returned	814	
	16,603	

"Public health is the foundation upon which rests the happiness of the people and the strength of the nation."—Disraeli.



Tuberculosis

E. L. M. Tate-Thompson, Director
Bureau of Tuberculosis.

In 1914, when the California Tuberculosis Association began its first organized sale of Red Cross Christmas seals, the proceeds for the state amounted to $12,000. Out of that small sum began the agitation all over the state for the establishment of visiting nurses who might care for and instruct the tuberculous poor in their homes until some other place could be provided for them.

In 1915 the sale amounted to $25,000, in $1916 $32,000, and in 1917 $64,000. The reason is not hard to guess, and it is not a broad statement to make, to say that today in California every bit of machinery with which we are fighting tuberculosis, with the exception of the hospitals, has come from the proceeds of the seal sale, combined with the devoted interest each local committee has shown in providing the machinery. Clinics, which must follow in the path of a visiting nurse, special diets, dental clinics for adults and school children, open air schools, summer camps, a preventorium, and occupational therapy teachers for the tuberculosis hospitals, are some of the contributions made towards tuberculosis control in this state since the 1914 seal sale; but the financial return, while much has been made possible, is the least of this gain. The educational value of the work, the interest that comes to those who sell or buy, the reminder far too often in a land of eternal sunshine of a fight begun too late, makes people dig down for pennies, for no penny is refused and no one too poor to buy.

The other day a man asked me if people were not getting tired of the seal sale. I told him the only answer I could give him was this: The California Tuberculosis Association had distributed by December sixth over five times as many seals as were sold in 1917, and people were calling for more. Twenty-seven million is a fairly large number of *anything,* and to be pressed to the limit for more looks to me as if they were not tired yet.

By far the most hopeful and interesting year is 1920; everywhere local committees will continue with their care for those suffering with tuberculosis, but we begin now where we should have begun a century ago on the preventive side. If it is true that "tuberculosis of the adult is the end of the song begun in the cradle," we shall, in this state, in twenty years never hear the song, for the 1920 program is one that will perhaps in the beginning bring tears to the eyes, but it will later bring joy to the heart of all tuberculosis workers, for the children long neglected, in our program in 1920, are to have a chance at every bit of machinery in the state. The program will be discussed later.

The surveys being made in Los Angeles are nearing completion. The Indian work during January will be cared for by Miss Shields, and later a complete health survey will be made of Los Angeles County. We wish to make a comparison between tuberculosis and other illnesses.

Occupational therapy has done much to help in the hospitals. The Arroyo (Alameda County Hospital) certainly deserves a prize; $500 earned in about three months by people only working a few hours a week is a record. What a lesson to be learned by strikers from these patients. At present we are only limited by lack of teachers, but more will be sent into the hospitals later on.

The brightest light shed in California on the tuberculosis problem comes from the Christmas seal. The quota of $178,800 will be reached, for all reports as we go to press point that way, and we shall need every penny. Our appalling death rate of nearly 9000 deaths in eighteen months must make us double our efforts. There are still hundreds of people suffering with tuberculosis who must be reached and cured, hundreds needing care, and as for the rest—a record to point to for 1920, that no children in our schools are below weight, or need special care and do not receive it.

Hospitals visited:

Arroyo (Alameda).
San Francisco.
Los Angeles.
La Vina.
Barlow.
Santa Barbara.
San Diego.

International Red Cross T.B. Program.

The following summary of the minutes of the medical conference of the Interallied Red Cross Societies held at Cannes, April 1 to 11, deals particularly with the section on tuberculosis. The report as here given is taken verbatim from the "Survey" for June 28, 1919:

> Recognizing the wide prevalence of tuberculosis, its incidence at all ages, and its great importance as a cause of excessive mortality, disability, distress and economic loss, we recommend that special attention be given to the fight against this disease in the plan of an organization having in view common action on the part of Red Cross societies. We believe that in any organized campaign against tuberculosis the following factors are fundamental and indispensable:
>
> 1. Dispensaries on an adequate scale, furnished with laboratories and appropriate equipment and affording provision for early diagnosis by expert physicians, and with especially trained visiting nurses, who shall carry into the homes of patients the necessary care, instruction and advice.
> 2. Provision for the careful, regular inspection of school children with a view to the early detection of tuberculosis.
> 3. Hospital treatment on an adequate scale of acute, advanced and hopeless cases of tuberculosis.
> 4. Sanatorium facilities for all suitable cases of tuberculosis.
> 5. Popular education regarding tuberculosis, its causes and prevention, by all suitable means and agencies.

It is evident that tuberculosis is inextricably associated with the general living and working conditions of the people, and we therefore recommend the encouragement of all legitimate efforts directed towards the improvement of these conditions. We regard as of particular importance in this connection the care of children, and the problems of housing, nutrition, and alcoholism.

We recommend the institution of appropriate measures to prevent the transmission of tuberculosis through infected milk.

We approve the establishment of open-air schools for the accommodation of children already infected by, or suspected of, infection with tuberculosis.

We call attention to the importance of the extension of open-air system to all institutions of segregation, such as barracks, asylums, orphanages, workhouses, penitentiaries, and the like.

Experience has shown us the importance of careful supervision of the tuberculous patient during the *entire* period of his illness. We, therefore, urge the need for close co-operation between the several institutional factors (dispensaries, hospitals, sanatoriums, etc.), and the more extended development of skilled social service under medical direction.

We think that attention should be drawn to the grave risk to which tuberculous patients are exposed through the exploitation of alleged cures without scientific authority.

Inasmuch as a problem of particular difficulty is that of providing suitable occupations for those cases of tuberculosis able to perform a certain amount of work under favorable conditions, we recommend the encouragement of efforts to solve this problem by the establishment of agricultural colonies and the organization of suitable industries which should be linked with the dispensaries and sanatoriums under medical supervision.

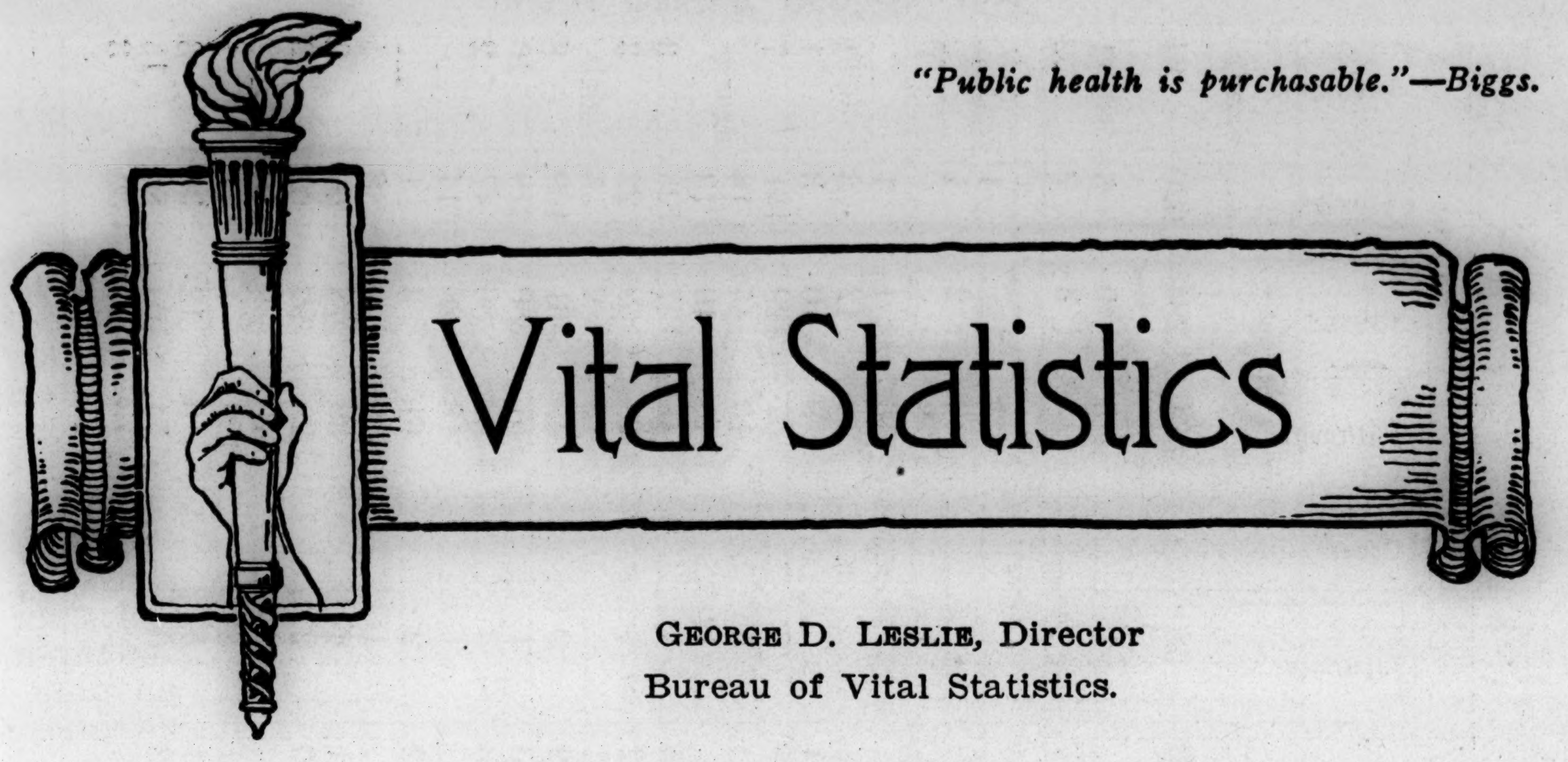
Recognizing that accurate knowledge of the distribution of tuberculosis is an essential preliminary to its control by public authorities in any community, we approve the principle of compulsory notification of tuberculosis to the health authorities under appropriate regulations.

We especially recommend the encouragement of research in the field of tuberculosis and the collection of information as to all factors bearing upon the prevalence and distribution of the disease.

(Signed) SECTION ON TUBERCULOSIS.
Professor Calmette, Chairman;
Sir Robert William Philip, Alternate.

France: Dr. Bernard, Professor Calmette, Dr. Courmont, Professor Rist.
Great Britain: Sir John Lumsden, Dr. Menzies, Sir Arthur Newsholme, Sir Robert W. Philip.
Italy: Colonel Badual, Professor Maragliano, Dr. Marchiafava, Dr. Poli.
Japan: Dr. Kabeshima, Dr. Naura.
United States: Drs. E. R. Baldwin, Hermann M. Biggs, Livingston Farrand, A. H. Garvin, Wm. Charles White, and Linsly R. Williams.

"Public health is purchasable."—Biggs.



Vital Statistics

George D. Leslie, Director
Bureau of Vital Statistics.

County Birth and Death Totals.

Exclusive of stillbirths in both cases, the birth and death totals for the month of October were as follows for the leading counties:

County	Deaths	Births	County	Deaths	Births
Los Angeles	873	981	Kern	39	101
Alameda	355	511	Contra Costa	25	81
Fresno	137	216	Tulare	29	93
Santa Clara	133	164	Stanislaus	27	63
San Diego	109	172	Balance of state	1,097	1,747
Sacramento	100	153			
San Joaquin	97	142	Totals	3,202	4,671
Sonoma	78	57	Indicated annual rate per 1,000 population	12.0	17.5
Orange	51	116			
Riverside	52	74			

City Birth and Death Totals.

Birth and death totals, exclusive of stillbirths, are presented similarly for the principal California cities below:

City	Deaths	Births	City	Deaths	Births
Los Angeles	568	830	Berkeley	31	81
San Francisco	530	705	Riverside	29	34
Oakland	196	328	Bakersfield	23	55
Sacramento	87	121	Vallejo	18	20
San Diego	79	124	Santa Barbara	16	34
Stockton	61	85	Balance of state	1,441	2,056
Fresno	49	85			
San Jose	38	56	Totals	3,202	4,671
Pasadena	36	57			

Marriages for October.

Los Angeles	822	San Bernardino	79
San Francisco	699	Riverside	68
Alameda	363	Marin	56
Fresno	148	Kern	47
Orange	144	Contra Costa	46
Sacramento	140	Sonoma	44
San Diego	137	Humboldt	39
Santa Clara	127		
San Joaquin	86	Total for month	3,618

Deaths by Principal Causes, October, 1919.

	Total	Sex		Race						Nativity			
		Male	Female	White	Black	Indian	Chinese	Japanese	Other	California	Other U. S.	Foreign	Unknown
Total deaths	3,202	1,927	1,275	3,031	43	20	50	58		834	1,284	1,020	64
Typhoid fever	20	11	9	18		1		1		5	9	5	1
Malarial fever	7	5	2	6		1				2	3	2	
Smallpox													
Measles	2	1	1	2						1		1	
Scarlet fever	9	6	3	9						6	2	1	
Whooping cough	8	5	3	7				1		8			
Diphtheria	21	11	10	21						16	4	1	
Influenza	26	18	8	26						10	12	3	1
Other epidemic diseases	23	13	10	21	1		1			9	10	3	1
Tuberculosis, lungs	334	220	114	306	9	4	9	6		67	129	131	7
Tuberculosis other organs	46	33	13	41				5		13	15	18	
Syphilis and gonorrhea	33	22	11	31	2					10	10	13	
Cancer	308	165	143	298	1	1	5	3		45	137	123	3
Other general diseases	110	65	45	107	1		2			26	59	22	3
Meningitis	15	9	6	14		1				8	2	5	
Other diseases of the nervous system	327	178	149	321	1		2	3		49	161	109	8
Diseases of circulatory system	560	348	212	537	9		13	1		51	280	219	10
Pneumonia and broncho pneumonia	168	98	70	158	3	1	3	3		63	56	47	2
Other diseases of respiratory system	58	27	31	54	1	2		1		18	26	14	
Diarrhea and enteritis, under 2 years	65	42	23	59		2	2	2		61	3	1	
Diarrhea and enteritis, 2 years and over	27	14	13	25		1		1		9	9	8	1
Other diseases of the digestive system	185	107	78	177	3		1	4		39	78	66	2
Brights disease and nephritis	189	117	72	178	2	1	6	2		25	99	62	3
Childbirth	29		29	27				2		10	9	10	
Diseases of early infancy	193	105	88	179	3	2	1	8		190	1	1	1
Suicide	52	45	7	46			1	5		6	13	30	3
Other violence	275	206	69	255	5	2	3	10		74	100	86	15
All other causes	112	56	56	108	2	1	1			13	57	39	3

Infant Deaths, October, 1919.

	Total	Male	Female	White	Black	Indian	Chinese	Japanese	Other
Under 10 days	68	41	27	61	1	1	------	5	------
10 days to 1 month	36	19	17	36	------	------	------	------	------
1 month	29	23	6	27	------	------	1	1	------
2 months	25	17	8	19	------	1	1	4	------
3 months	19	9	10	18	------	------	------	1	------
4 months	16	10	6	12	------	2	1	1	------
5 months	13	6	7	9	1	------	2	1	------
6 months	9	6	3	9	------	------	------	------	------
7 months	8	6	2	7	2	------	------	------	------
8 months	4	3	1	3	1	------	------	------	------
9 months	7	3	4	5	------	------	------	2	------
10 months	13	6	7	12	------	------	------	1	------
11 months	5	4	1	5	------	------	------	------	------
Totals	251	152	99	223	5	4	5	16	------

Distribution of Deaths from Certain Epidemic Diseases, October, 1919.

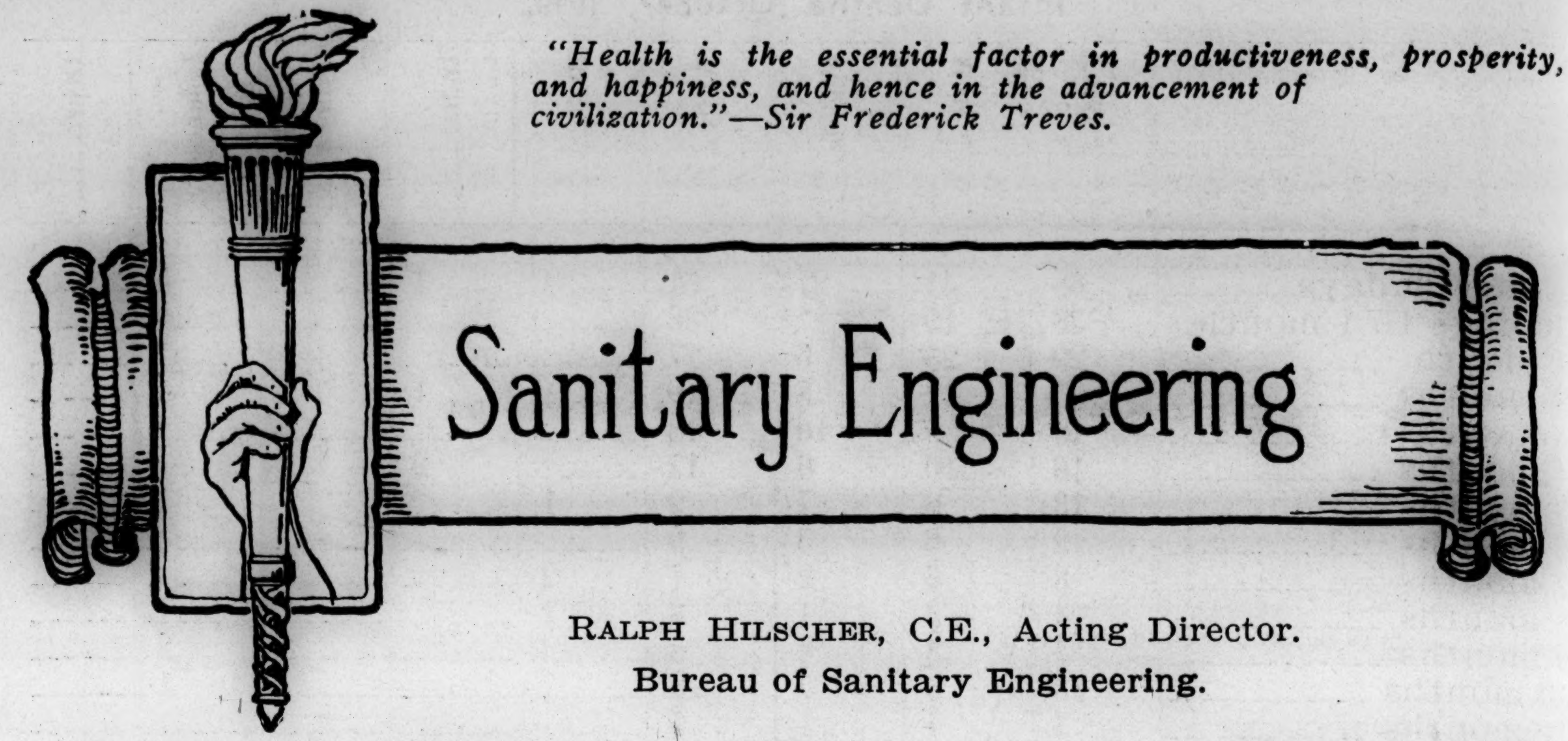
Locality	Typhoid fever	
	Deaths	Cases reported
Alameda (city)	1	1
Chico	1	1
Fresno (city)	5	3
Fresno County	1	14
Eureka	1	------
Los Angeles (city)	3	27
Orange (city)	1	------
Banning	1	3
Blythe	1	3
Sacramento (city)	1	9
Lodi	1	2
Gilroy	1	3
Redding	1	------
Brawley	1	3
	20	69

Locality	Diphtheria	
	Deaths	Cases reported
El Cerrito	1	2
Fresno (city)	1	18
Los Angeles County	1	14
Riverside (city)	1	5
Hollister	1	------
San Francisco	3	51
Tracy	1	3
Santa Barbara (city)	2	14
San Jose	1	------
Mountain View	1	6
Vallejo	2	36
Sebastopol	2	5
Sonoma County	1	------
Stanislaus County	1	1
Red Bluff	2	2
	21	157

Locality	Whooping cough	
	Deaths	Cases reported
Oakland	1	5
Antioch	1	1
Los Angeles (city)	1	20
San Fernando	1	------
Huntington Beach	1	4
Sacramento (city)	1	5
Chino	1	6
San Francisco	1	34
	8	75

Locality	Scarlet fever	
	Deaths	Cases reported
Contra Costa County	1	1
Sacramento (city)	2	11
Sacramento County	1	------
San Francisco	1	43
Stockton	1	7
San Jose	2	9
Vallejo	1	1
	9	72

"Health is the essential factor in productiveness, prosperity, and happiness, and hence in the advancement of civilization."—Sir Frederick Treves.



Sanitary Engineering

RALPH HILSCHER, C.E., Acting Director.
Bureau of Sanitary Engineering.

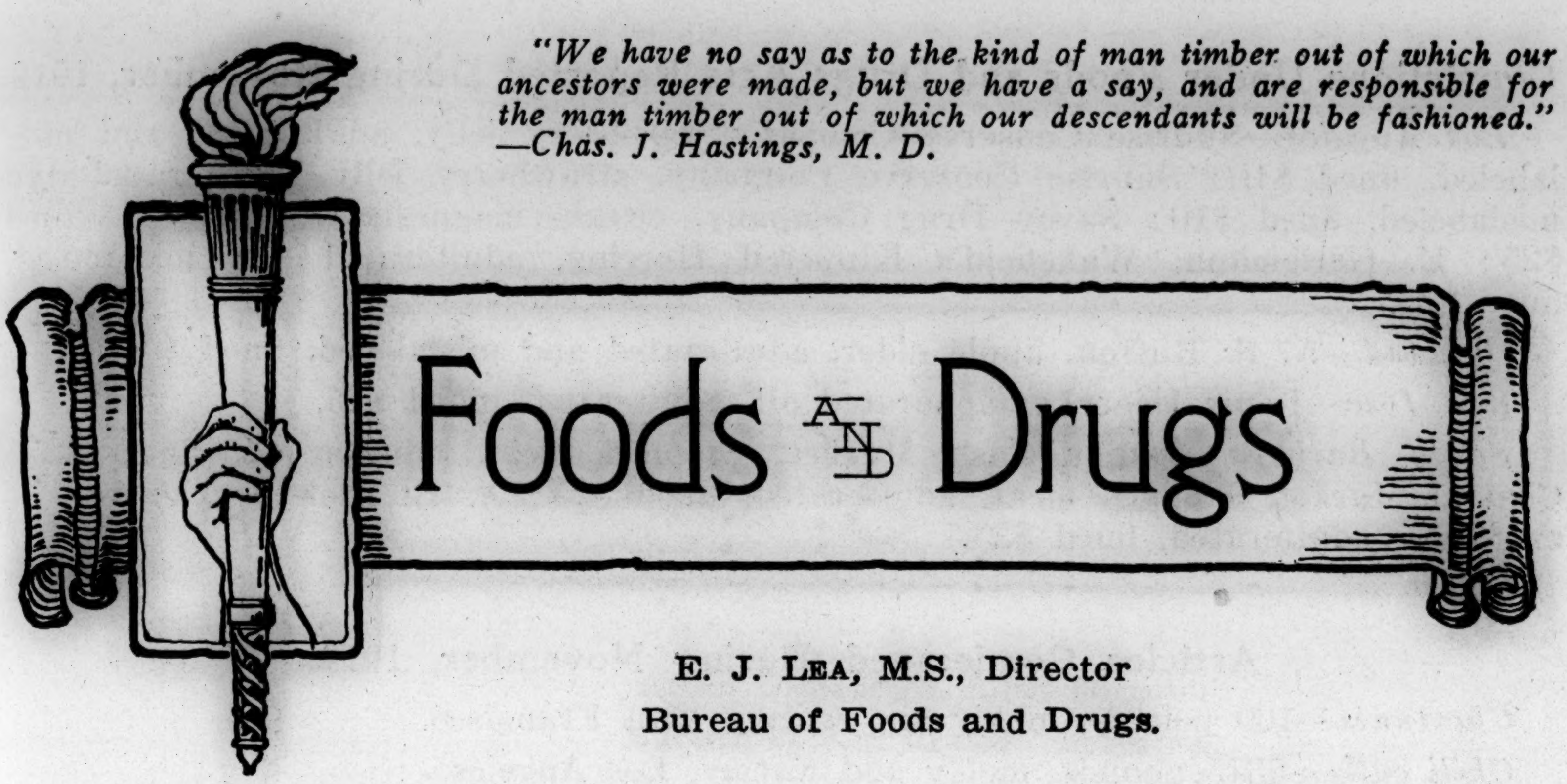
On November 20 Mr. C. G. Gillespie resigned as Director of the Bureau of Sanitary Engineering to accept the position of resident engineer in charge of design and construction of the water filtration plant to be built by the city of Sacramento. Mr. Gillespie had been Director of the Bureau since its organization in 1915, and by his resignation the State Board of Health has lost a man of exceptional engineering and administrative ability. The Bureau is also losing the services of Mr. Harry N. Jenks, Assistant Engineer, who will be employed on the Sacramento work.

The city of Sacramento is to be commended for its general policy of establishing a strong engineering organization to carry out so important a work. Charles Gilman Hyde, Professor of Sanitary Engineering at the University of California, is serving as the city's consulting engineer, and the principal assistants under Mr. Gillespie have been chosen because of their particular fitness for the different branches of the work they will undertake.

The work of the Bureau in connection with swimming pool sanitation is growing rapidly. A number of new pools are being planned and a great number of the existing pools are to be remodeled in accordance with the state regulations, which go into effect the first of next March. Most of the pools of greatest patronage have been inspected by the Bureau. Very few of these have been found to approach the standards of sanitation and safety demanded by the State Board of Health, and which should be demanded by the patrons. Many managers recognize the advertising value, as well as the public benefit, to be derived from eliminating insanitary features of their pools in order to secure approval by the State Board of Health. It is to be hoped that the persons who patronize swimming pools will reward with their patronage those owners and managers who offer the safest and most sanitary facilities.

A study of sugar plant waste water was undertaken at Betteravia during the month. This is one of the numerous waste disposal problems that are being presented to the Bureau as a result of development along certain industrial lines in this state. A large number of fruit canneries and fruit processing plants have serious nuisance problems for solution and it is highly desirable that intensive research be carried on during the next fruit season in order that the most satisfactory means of treating the waste may be determined.

"We have no say as to the kind of man timber out of which our ancestors were made, but we have a say, and are responsible for the man timber out of which our descendants will be fashioned."
—Chas. J. Hastings, M. D.



Foods and Drugs

E. J. Lea, M.S., Director
Bureau of Foods and Drugs.

A total of two hundred thirty-three samples were received at the laboratory during the month. Sixty-three official samples collected by the inspectors consisted of cordial, cake, candy, chocolate, coffee, cream, drugs, eggs and egg substitute, extract, feeds, fig pulp, fruit, ice cream, jelly, meat, milk, molasses, nuts, shredded wheat biscuit, syrups and vegetables.

One hundred sixty unofficial samples were collected, consisting of chicken, chrometto, coffee, condiments, frozen eggs, feeds, fig bars and fig paste, fish, fish meal, fruits, jam, kerosene, milk, miscellaneous colorings, noodles, olive oil, olives, pastry, preservative, syrup, tablets, vegetables, walnut meats and water.

Ten samples were received from state institutions during the month, consisting of butter, extract, flour, meat meal, salad oil, soap, and tankage.

Cases Referred to District Attorneys.

The following cases were referred to the district attorneys for prosecution at the November meeting of the State Board of Health:

Los Angeles—Frede Margarettan, tomato sardines; Smith's Pharmacy, camphorated oil.

Manteca—Liberty Market, chopped meat.

Marysville—Columbia Cafe, maple syrup.

Oakland—American Grocery Company, chocolate; N. Brophy, bakers' eggs; John Castores, candy; Cream Valley Butter Company, fresh eggs; I. Diamond, fresh eggs; Grizzly Peak Creamery, fresh eggs; S. Herman, fresh ranch eggs; S. Herman, bakers' eggs; Lekas Bros., strawberry syrup; Makins Produce Company, bakers' eggs; Rosenthal's Grocery, prunes; Ida Stippetsobl, fresh eggs; Swift & Company, eggs; Swift & Company, sliced bacon; Wanto Company, fresh eggs; H. G. Young, maple syrup.

Petaluma—I. Notelovich, eggs.

Richmond—Lewis Gianella, milk.

Sacramento—J. C. Littlepage, filtered apple cider; K. Okano, strawberry syrup.

San Francisco—S. G. Burlingham & Company, fresh apple cider; California Cafe, eggs; Garbini Brothers, full cream cheese; Mateo M. Mezquida Company, canned cove oysters.

San Jose—Geo. Gulmon, wild cherry syrup; Geo. Gulmon, orange syrup.

Santa Barbara—Rexall Store, citrate of magnesia.

Santa Rosa—Santa Rosa Bottling Works, ginger ale soda water.

Ukiah—F. M. Wilson, banana syrup.

Ventura—Jones & Son, camphorated oil.

Convictions Under Foods and Drugs Acts Reported During November, 1919.

Los Angeles—Sunrise Conserve Company, raspberry jelly, adulterated and mislabeled, fined $10; Sunrise Conserve Company, strawberry jelly, adulterated and mislabeled, fined $10; Savoy Drug Company, citrate magnesia, adulterated, fined $25; E. Gerlemann, Wakefield's Kippered Herring, adulterated and mislabeled, fined $25.

Oakland—A. S. Bufton, apple cider, adulterated and mislabeled, fined $5.

San Jose—Louis Doerr, camphorated oil, adulterated, fined $25.

Santa Barbara—Junior Cash Market, chopped meat, adulterated, fined $25; Central Market, chopped meat, adulterated, fined $25; A. B. Fleischer, citrate of magnesia, adulterated, fined $25.

Articles Condemned During November, 1919.

Chestnuts—100 pounds, moldy and wormy, San Francisco.

Chili culls—5375 pounds, moldy and wormy, Los Angeles.

Eggs—5 cases, decomposed, Oakland.

Egg Meats—1390 pounds, stale, decomposed, San Francisco.

Nut Meats—(Manchurian) 300 pounds, rancid, San Francisco.

Oysters—(Palmito brand) 36 cases, decomposed, Los Angeles.

Peaches—(2½-pound cans) 2676 cans, unfit for food, San Francisco.

Raisins—30 boxes, 25 pounds each, wormy and moldy, Fresno.

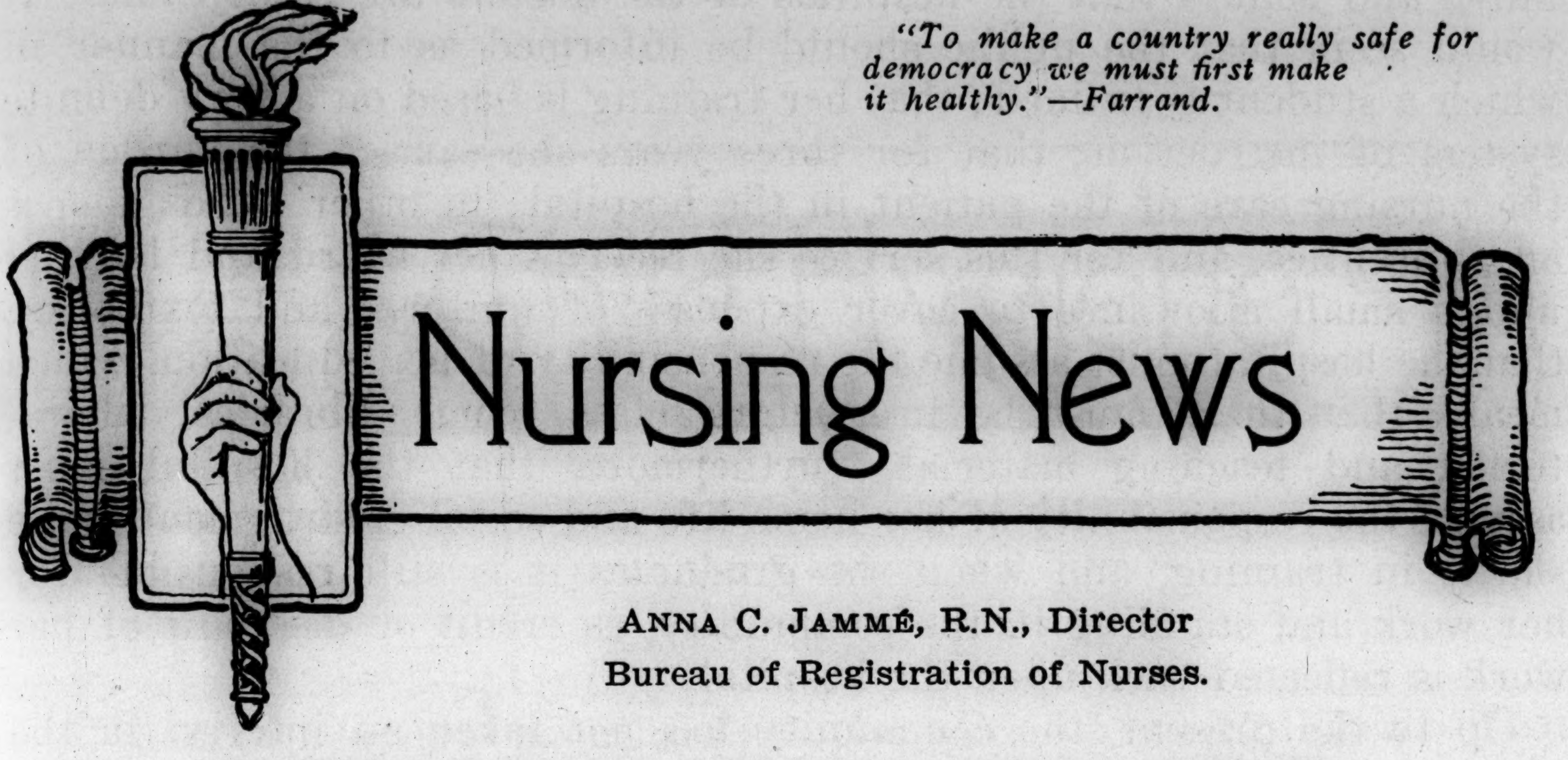
Sardines—(potted tomato) 23 cases, unfit for food, Los Angeles.

Tomato Paste—38 14-ounce tins, moldy, decomposed, San Jose.

Tomato Puree—7176 No. 2½ cans, adulterated, Los Angeles.

Walnut Meats—25 pounds, wormy, rancid, Oakland; 2150 pounds, wormy, rancid, Los Angeles.

"To make a country really safe for
democracy we must first make
it healthy."—Farrand.



Nursing News

ANNA C. JAMMÉ, R.N., Director
Bureau of Registration of Nurses.

Discussion of Length of Course in Schools of Nursing.

The State Board of Health has invited discussion from superintendents of hospitals and superintendents of schools for nurses on the question of the length of course for the training of student nurses.

At the regular monthly meeting of the Board held in Los Angeles on October 4, the superintendents of hospitals and schools for nurses of that city were present, every school being represented and each called upon to express opinion as to the advisability of reducing the course or making any changes in the present curriculum. A special meeting was called in San Francisco on October 14, at which representatives from all of the schools in the Bay district, with the exception of St. Francis and St. Luke's, San Francisco, and Alta Bates Sanitarium, Berkeley, were present.

From the opinions elicited from these two groups, it would appear that the approach to the problem of the training of a nurse should not be through a reduction of the length of course; that it is difficult in the majority of cases to cover the necessary amount of instruction and to build up a sense of responsibility in regard to the duties of a nurse in less time than three years. It was brought forward that in certain cases where there was a good educational background and sufficient maturity the course could be covered in two years and a creditable nurse developed, while in other cases it would be impossible to create a nurse, when no foundation was there, in any length of time.

This very much discussed question of the length of time required to properly prepare the student for her work as a nurse is receiving attention not only in California, but elsewhere in the United States, and various committees are now at work, amongst them a committee of the Rockefeller Foundation, to endeavor to bring about a better adjustment of hospital and training school work.

It would seem that this question of the training of nurses is becoming serious from the public standpoint. The unending calls for nurses for the service of the public, not for private service only, but for school work, in the industries, child welfare, tuberculosis, institutional work, etc., is clear evidence that it must be a community responsibility to see that sufficient young women are properly prepared for the services which our communities are now demanding. As it stands today, the public, as a whole, know little or nothing about the training for a nurse and believe that the hospitals or the doctors are responsible. It would seem that the public should be informed as to the manner in which a student is trained; that her training is based on a very definite system of instruction; that for three years she carries the burden of the nursing care of the patient in the hospital; in other words, she is an apprentice, and for this service she receives her board and lodging and a small allowance to cover expenses of uniform and textbooks; that the hospital must assume the responsibility of her education, which means that there must be instructors, class rooms, libraries, laboratories, and teaching material; furthermore, that the hospital must assume the responsibility of her home life and social environment while she is in training, and when she graduates it is still responsible for her work and standing in the community, as credit or discredit of her work is reflected back upon the hospital.

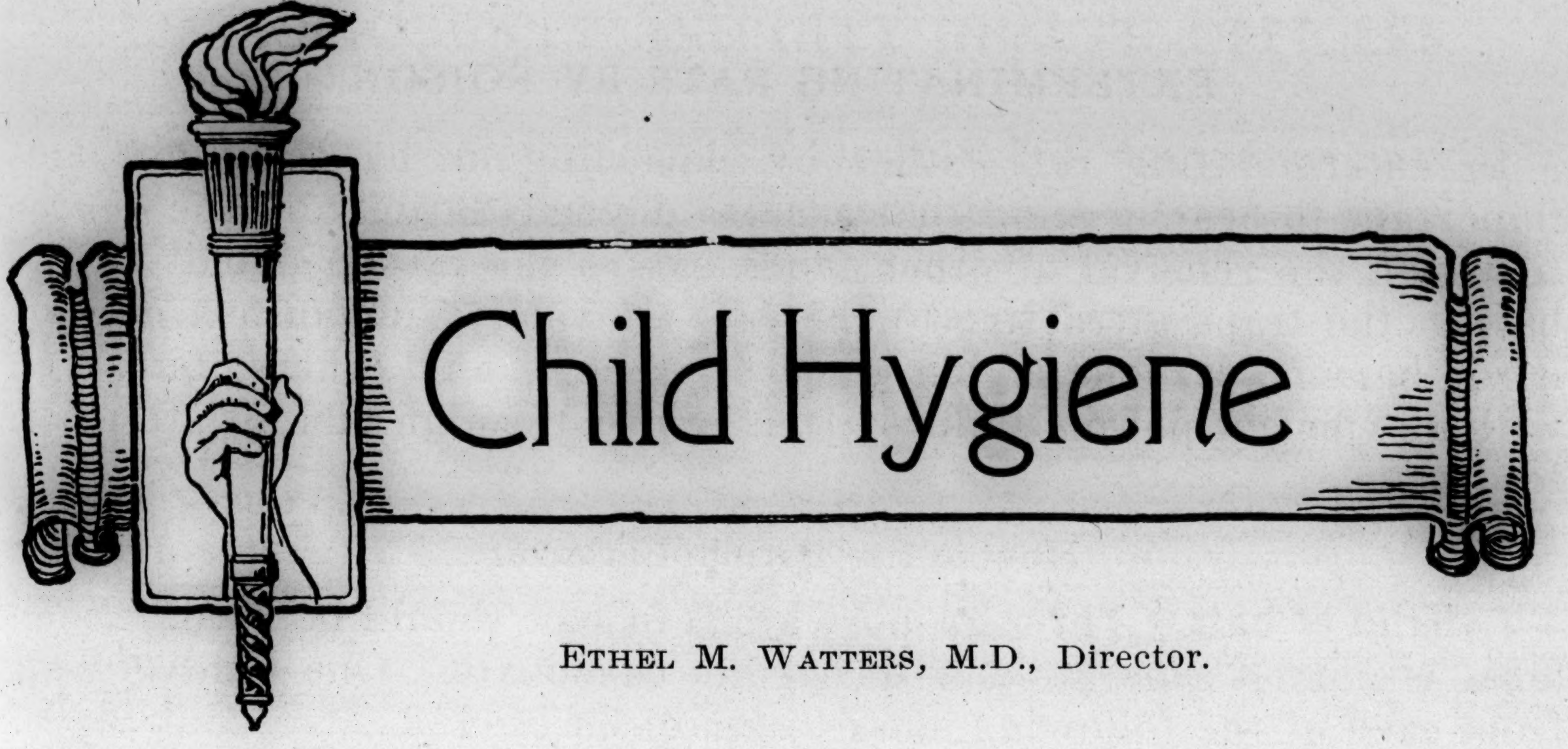
Up to the present, the community has not taken an interest in the schools for nurses in their own localities, and have been wholly indifferent as to how the supply of nurses was to be maintained. The alarming shortage of students is serious, and more serious still is the extreme youth of the present-day applicant, many applying at seventeen and the greater number entering at eighteen. The educational status of applicants shows a large number under high school grade. From figures compiled by the Bureau during the past year 52.57 per cent of applicants have but grammar school education.

Therefore, the question of shortening the course to meet the present acute emergency, under conditions now existing in the schools, would seem almost hazardous. Rather, would it not be of greater advantage to all concerned to have an impartial inquiry into conditions in this state which deter a young woman from seeking this training, such as the conditions under which she receives her course of instruction, the content of this instruction, and, further, what will be the professional and social standing after she graduates and enters on her public service. What status will she be accorded in the community when she has accomplished her three years of instruction and service in the hospital? It is hoped that such an inquiry will aid in establishing a solution of the problem by bringing together those who should be interested and from whom support must come if our schools for training nurses will develop into their greatest usefulness.

Nurses Certificated.

At the regular meeting of the State Board of Health held on December 6, 272 nurses were granted certificates as registered nurse, after passing a successful examination on October 29 and 30. These nurses are graduates of accredited schools of nursing in this state and other states, and are now entitled under the law to be known as registered nurses.

This certificate is now required by the California Board of Education, under the act of 1919, for all school nurses. Those applying for school work should see that they have their certificate before making application, otherwise they are unable to receive compensation.



Child Hygiene

Ethel M. Watters, M.D., Director.

It has been several months since the work of the Children's Year Committee ended, but its influence is still apparent. The women who worked so faithfully for the success of Children's Year have not been idle, and there has been a large volume of correspondence which testifies to an ever-increasing interest in the welfare of the children of this state.

The new Bureau of Child Hygiene begins its work under favorable auspices. The friends who interested themselves in the legislative procedure necessary for the formation of the Bureau are standing by now with offers of aid and co-operation, which are gratefully received.

The Bureau's Plans.

The plan of the new Bureau will be concentrated on matters relating to prenatal care, infant welfare and child hygiene of the preschool age. However, when aid is requested for the older child it will be cheerfully given.

When the nurses have finished the course in public health, offered by the University of California, there will be released, for duty, some twenty-four well trained young women. They have been tendered more positions in public health than they could fill were they three times stronger in numbers. We are looking to them to accomplish great things in organization. Every community is interested in child welfare and these nurses will know how to capitalize that interest, forming mothers' classes, children's health centers, nutrition classes, etc. Every community so fortunate as to obtain the services of one of these trained workers, is to be congratulated.

County Units Necessary.

It is the hope of the Bureau that in every county there will be a strong committee formed to promote the public health phase of child hygiene. This county unit will receive aid from all the state departments and will, in turn, interest individuals residing in their locality.

A survey of the work now carried on in various centers is contemplated, and workers in child welfare who are interested are cordially invited to write the Bureau of their plans and accomplishments.

EXTERMINATING RATS BY POISON.

In exterminating rats either by poisoning or by trapping it is important to bear in mind that success depends largely on the degree to which the removal of other foods makes the poisoned bait or the bait in the traps attractive to the rat. A variety of poisons may be used, barium carbonate, phosphorus, arsenic, and others, but even with an efficient poison, failure often results through lack of attention to details.

How to Use Barium Carbonate.

I. **Kind of bait.** Three or more kinds of bait should be used. Each must be mixed separately with barium carbonate. One kind of bait from each of the following classes should be used:

(1) Meat or other animal substance; such as Hamburg steak, sausage, canned salmon, eggs or oysters.

(2) Fresh fruit or vegetable food; such as cantaloupe, tomatoes, green corn, baked sweet potatoes, bananas, etc.

(3) Miscellaneous foods, milk or cheese, peanut butter, bread, cake, cereals (raw or cooked).

II. **How to mix.** The barium carbonate must be thoroughly mixed with the bait, so that the rats can not eat the smallest portion of the bait without getting some of the barium carbonate. In the case of such substances as Hamburg steak, cheese, etc., use one part of barium carbonate to four parts of bait. Mix thoroughly with a spoon.

Substances which can not be thoroughly mixed with the barium carbonate as just described (for example, cantaloupe, tomatoes, etc.) should be cut into small pieces and thoroughly covered with the barium carbonate, and then worked in with a knife.

III. **How to set poison.** The three kinds of bait, prepared as above, should be divided into small portions about a teaspoonful each and placed freely about premises, alternating baits 1, 2, 3. It should be set at short intervals, not over ten or fifteen feet. **Do not mix the different kinds of bait with each other.**

IV. **General instructions.** The morning after baiting, look for dead rats and remove them. Take up baits. Examine these so as to see which have attracted most rats. If any kind of bait has not been touched, use a different bait instead of this. Fresh bait should be used each night.

V. **How often to bait.** Bait every night, as long as rats continue to eat bait.

VI. **Caution.** Keep fowls, dogs, cats, etc., away from bait.

ANTIDOTE: An emetic, followed by Rochelle or Epsom salts.

January, 1920.

LIST OF COUNTY AND CITY HEALTH OFFICERS.

Alameda County—
Dr. J. Hal Cope — Pleasanton
Alameda — Dr. A. Hieronymus
Albany — Dr. J. F. Diddle
Berkeley — Dr. Ernest H. Pape
Emeryville — Dr. A. T. Drennan
Hayward — Dr. F. W. Browning
Livermore — Dr. J. K. Warner
Oakland — Dr. Daniel Crosby
Piedmont — Dr. Benj. T. Mouser
Pleasanton — Dr. J. Hal Cope
San Leandro — Dr. Luther Michael

Alpine County—
——— ——— — Markleeville

Amador County—
Dr. G. L. Lynch — Amador City
Amador City — W. T. Connors
Jackson — H. E. Kay
Plymouth — W. J. Ninnis
Sutter Creek — T. W. Trudgen

Butte County—
Dr. L. L. Thompson — Gridley
Biggs — Sarah J. Hiett
Chico — W. H. Marshall
Gridley — Dr. L. Q. Thompson
Oroville — Dr. W. F. Gates

Calaveras County—
Dr. George F. Pache — Angels Camp
Angels Camp — Dr. E. W. Weirich

Colusa County—
Dr. G. W. Desrosier — Colusa
Colusa — Dr. G. W. Desrosier

Contra Costa County—
Dr. Chas. R. Blake — Richmond
Antioch — Dr. W. S. George
Concord — Dr. F. F. Neff
El Cerrito — Dr. J. T. Breneman
Hercules — Dr. C. T. Wetmore
Martinez — Dr. Edwin Merrithew
Pinole — Dr. M. L. Fernandez
Pittsburg — Dr. H. E. Peters
Richmond — Dr. Chas. R. Blake
Walnut Creek — Dr. C. R. Leech

Del Norte County—
Dr. E. M. Fine — Crescent City
Crescent City — Dr. E. M. Fine

El Dorado County—
Dr. S. H. Rantz — Placerville
Placerville — P. J. Hall

Fresno County—
Dr. G. L. Long — Fresno
Clovis — Dr. M. S. McMurtry
Coalinga — Dr. C. W. Hutchinson
Firebaugh — Thos. B. Gaines
Fowler — Chas. Chapman
Fresno — Dr. Geo. H. Bland
Kingsburg — Dr. T. D. Smith
Reedley — Dr. Chas. H. Traber
Sanger — E. G. Thompson
Selma — Dr. Fred H. Williams

Glenn County—
Dr. F. M. Lawson — Willows
Orland — Dr. S. Iglick
Willows — Dr. W. H. Walker

Humboldt County—
Dr. F. R. Horel — Arcata
Arcata — Dr. G. W. McKinnon
Blue Lake — Dr. Earl W. Hill
Eureka — Dr. John N. Chain
Ferndale — Dr. J. J. Myers
Fortuna — Dr. Orville Rockwell

Imperial County—
Dr. L. C. House — El Centro
Brawley — Dr. Eugene Le Baron
Calexico — Dr. M. L. Parcels
Calipatria — L. P. Phillips Jr.
El Centro — Dr. W. F. Peterson
Holtville — C. L. Gillett
Imperial — R. M. Thompson

Inyo County—
Dr. I. J. Wordin — Independence
Bishop — Dr. D. M. Nicoll

Kern County—
Dr. S. C. Long — Bakersfield
Bakersfield — Dr. P. J. Cuneo
Delano — Dr. J. R. Hicks
Maricopa — Dr. H. N. Taylor
McKittrick — Dr. Robert McLaughlin
Taft — Dr. M. W. Pascoe
Tehachapi — Dr. M. Kay

Kings County—
Dr. C. L. Scott — Hanford
Corcoran — Dr. L. O. Henrich
Hanford — Dr. A. S. Torrens
Lemoore — Dr. Blake Franklin

Lake County—
Dr. A. N. Craig — Kelseyville
Lakeport — P. H. Millberry

Lassen County—
Dr. F. D. Walsh — Susanville
Susanville — Mrs. Ralph Hart

Los Angeles County—
Dr. J. L. Pomeroy — Los Angeles
Alhambra — Dr. F. E. Corey
Arcadia — F. W. Treen
Avalon — Dr. J. J. Peckham
Azusa — Mrs. Nettie Dingman
Beverly Hills — Dr. J. R. Perry
Burbank — Dr. E. H. Thompson
Claremont — Dr. F. H. Geer
Compton — A. C. Cooney
Covina — Dr. J. A. Lepley
Culver City — Dr. W. F. Mortensen
Eagle Rock — Dr. C. H. Phinney
El Monte — Dr. B. B. Bolton
El Segundo — Dr. R. S. Anthony
Glendale — Dr. R. E. Chase
Glendora — Dr. J. L. Pomeroy
Hermosa Beach — B. F. Brown
Huntington Park — Dr. Thos. J. DeVaughn
Inglewood — Dr. C. M. Graham
La Verne — Dr. W. H. Eaton
Long Beach — Dr. R. L. Taylor
Los Angeles — Dr. L. M. Powers
Manhattan Beach — Llewellyn Price
Monrovia — Dr. Chas. D. Gaylord
Monterey Park — Dr. N. J. Brown
Pasadena — Dr. J. S. Hibben
Pomona — Dr. W. H. Eaton
Redondo Beach — Dr. A. C. Hendree
San Fernando — Dr. John M. Griffiths
San Gabriel — Dr. Wm. W. Worster
San Marino — Dr. W. LeMoyne Wills
Santa Monica — Dr. F. J. Wagner
Sierra Madre — Dr. R. H. Mackerras
South Pasadena — Dr. C. F. Metcalf
Venice — Dr. I. L. Magee
Vernon — Dr. L. J. Williams
Watts — Dr. J. L. Lamb
Whittier — J. C. Warner

Madera County—
Dr. C. A. Robinson — Madera
Madera — Dr. C. A. Robinson

Marin County—
Dr. J. H. Kuser — Novato
Belvedere — Dr. Florence Scott
Corte Madera — A. F. Roberts
Larkspur — Dr. L. Newman
Mill Valley — Theodore B. Thorndike
Ross — Dr. Thos. U. Smith
San Anselmo — Dr. O. W. Jones
San Rafael — Dr. W. F. Jones
Sausalito — Dr Allan H. Vance

Mariposa County—
Dr. E. S. Scott — Mariposa

Mendocino County—
Dr. S. L. Rea — Ukiah
Fort Bragg — Dr. Harper Peddicord
Point Arena — M. S. Scott
Potter Valley — W. T. Eddie
Ukiah — Dr. Lew K. Van Allen
Willits — Dr. Ernest C. Griner

Merced County—
Dr J. L. Mudd — Merced
Gustine — Dr. C. E. Stagner
Los Banos — Dr. R. Jadarola
Merced — Dr. C. H. Castle

Modoc County—
Dr. W. E. Coppedge — Alturas
Alturas — Dr. John Stile

Mono County— ——— ———
— Bridgeport

Monterey County—
Dr. J. A. Beck — Salinas
Carmel-by-the-Sea — W. T. Kibler
King City — Mrs. R. H. Brunette
Monterey — Peter Sella
Pacific Grove — James P. Evans
Salinas — S. F. Butler

Napa County—
Dr. O. T. Schulze — Napa
Calistoga — Harry Von Arx
Napa — E. L. Geiger
St. Helena — Wynn M. Powers

Nevada County—
Dr. Carl P. Jones — Grass Valley
Grass Valley — Dr. Carl P. Jones
Nevada City — Geo. H. Calanan

LIST OF COUNTY AND CITY HEALTH OFFICERS—Continued.

Orange County—

Dr. Arthur H. Domann ---- Orange
Anaheim ---- Dr. J. W. Truxaw
Brea ---- Dr. O. S. Parrett
Fullerton ---- Dr. J. H. Lang
Huntington Beach ---- Dr. G. A. Shank
Newport Beach ---- J. A. Porter
Orange ---- Dr. J. C. Crawford
Santa Ana ---- Dr. J. I. Clark
Seal Beach ---- Miss Sadie Sweeney
Stanton ---- James F. Robinson

Placer County—

Dr. G. W. Davis ---- Lincoln
Auburn ---- Dr. Theodore Snypp
Colfax ---- Dr. Charles J. Durand
Lincoln ---- F. R. Elder
Rocklin ---- John H. Gregory
Roseville ---- G. W. Lohse

Plumas County—

Dr. J. R. Laswell ---- Quincy

Riverside County—

Dr. James G. Baird ---- Riverside
Banning ---- Dr. Franklin P. Blake
Beaumont ---- Robert Adams
Blythe ---- Dr. W. H. Chapman
Corona ---- Dr. W. S. Davis
Elsinore ---- Dr. G. E. Shank
Hemet ---- Dr. J. A. Ramsay
Perris ---- Dr. J. N. Reese
Riverside ---- Dr. W. B. Wells
San Jacinto ---- Dr. H. O. Miller

Sacramento County—

Dr. J. A. Loughridge ---- Folsom
Sacramento ---- Dr. W. J. Hanna

San Benito County—

Dr. J. M. O'Donnell ---- Hollister
Hollister ---- Dr. J. M. O'Donnell
San Juan ---- W. S. Hayden

San Bernardino County—

Dr. L. M. Coy ---- San Bernardino
Chino ---- Dr. Elgar Reed
Colton ---- Dr. C. F. Whitmer
Needles ---- Dr. A. S. Boland
Ontario ---- Dr. Calvert L. Emmons
Redlands ---- Dr. Wm. A. Taltavall
Rialto ---- Dr. L. P. Barbour
San Bernardino ---- Dr. F. M. Gardner
Upland ---- E. R. Bowman

San Diego County—

Dr. G. B. Worthington ---- San Diego
Chula Vista ----
Coronado ---- Dr. Raffael Lorini
East San Diego ---- Dr. C. R. Carpenter
El Cajon ----
Escondido ---- Dr. B. L. Crise
La Mesa ---- Dr. A. D. Marks
National City ---- Dr. Theo. F. Johnson
Oceanside ---- Dr. R. S. Reid
San Diego ---- Dr. E. P. Chartres-Martin

San Francisco (city and county)—

Dr. W. C. Hassler ---- San Francisco

San Joaquin County—

Dr. A. Cavagnaro ---- Stockton
Lodi ---- Dr. S. W. Hopkins
Manteca ---- F. M. Roundtree
Stockton ---- Dr. Linwood Dozier
Tracy ---- Dr. Allen R. Powers

San Luis Obispo County—

Dr. C. J. McGovern ---- San Luis Obispo
Arroyo Grande ---- Dr. H. S. Brown
Paso Robles ---- Wm. Ryan
San Luis Obispo ---- W. F. Cook

San Mateo County—

Dr. F. Holmes Smith ---- San Bruno
Burlingame ---- Lewis A. Cavalier
Daly City ---- Dr. A. H. Rankin
Hillsborough ---- C. M. Hirschey
Redwood City ---- Dr. J. E. Chapin
San Bruno ---- Dr. F. Holmes Smith
San Mateo ---- Dr. W. C. McLean
So. San Francisco ---- Dr. J. C. McGovern

Santa Barbara County—

Dr. G. S. Loveren ---- Santa Barbara
Lompoc ---- Dr. C. B. Constable
Santa Barbara ---- Arthur W. Sloan
Santa Maria ---- Dr. W. T. Lucas

Santa Cruz County—

Dr. Wm. H. Keck ---- Santa Cruz
Santa Cruz ---- Dr. A. N. Nittler
Watsonville ---- Dr. A. W. Bixby

Santa Clara County—

Dr. Wm. Simpson ---- San Jose
Alviso ---- Alice Davee
Gilroy ---- Dr. J. W. Thayer
Los Gatos ---- Dr. M. S. Anderson
Mayfield ---- Joseph Ponce
Morgan Hill ---- Dr. W. D. Miner
Mountain View ---- Dr. A. H. MacFarlane
Palo Alto ---- Louis Olson
San Jose ---- Dr. W. C. Bailey
Santa Clara ---- Dr. G. W. Fowler
Sunnyvale ---- M. J. McGinnes

Shasta County—

Dr. S. T. White ---- Redding
Kennett ---- Dr. C. H. Haake
Redding ---- E. A. Rolison

Sierra County—

Dr. O. A. Eckhardt ---- Downieville
Loyalton ---- Dr. L. G. Ede

Siskiyou County—

Dr. H. S. Warren ---- Yreka
Dorris ---- Otha A. Wilkins
Dunsmuir ---- F. W. O'Donnell
Etna ---- Dr. W. H. Haines
Fort Jones ---- T. J. Wayne
Montague ---- Hugh W. French
Sisson ---- Dr. Paul Wright
Yreka ---- Dr. H. S. Warren

Solano County—

Dr. W. C. Jenney ---- Vacaville
Benicia ---- Dr. Abbie Blodgett
Dixon ---- H. G. Grove
Fairfield ---- F. L. Morrill
Rio Vista ---- Geo. Adcock
Suisun ---- Dr. A. G. Bailey
Vacaville ---- W. F. Hughes
Vallejo ---- Dr. A. J. Klotz

Sonoma County—

Dr. F. O. Pryor ---- Santa Rosa
Cloverdale ---- E. E. Gibbins
Healdsburg ---- Dr. J. W. Seawell
Petaluma ---- Dr. R. B. Duncan
Santa Rosa ---- Dr. Jackson Temple
Sebastopol ---- Dr. Lafayette Wilson
Sonoma ---- J. H. Albertson

Stanislaus County—

Dr. J. L. Hennemuth ---- Modesto
Ceres ---- T. F. Perrin
Modesto ---- Dr. J. W. Morgan
Newman ---- Dr. H. V. Armistead
Yuba City ---- Dr. J. H. Barr
Oakdale ---- Dr. E. R. Clarke
Turlock ---- Dr. C. E. Pearson

Sutter County—

Dr. W. L. Stephens ---- Meridian

Tehama County—

Dr. E. E. Thompson ---- Red Bluff
Corning ---- Dr. Caroline Hewes
Red Bluff ---- Dr. F. J. Bailey
Tehama ---- Dr. J. H. Belyea

Trinity County—

Dr. David B. Fields ---- Weaverville

Tulare County—

Dr. A. W. Preston ---- Visalia
Dinuba ---- Dr. C. A. Tillotson
Exeter ---- Dr. W. R. Tyler
Lindsay ---- Dr. C. W. Locke
Porterville ---- Dr. O. C. Higgins
Tulare ---- Dr. J. B. Rosson
Visalia ---- Dr. A. W. Preston

Tuolumne County—

Dr. Wm. L. Hood ---- Sonora
Sonora ---- Dr. Wm. L. Hood

Ventura County—

Dr. A. A. Maulhardt ---- Oxnard
Fillmore ---- Dr. Will R. Manning
Oxnard ---- Dr. G. A. Broughton
Santa Paula ---- Dr. Geo. Corey
Ventura ---- L. M. Wilson

Yolo County—

Dr. W. J. Blevins ---- Woodland
Davis ---- Dr. W. E. Bates
Winters ---- C. M. Norton
Woodland ---- Alice G. Thomas

Yuba County—

Dr. J. H. Barr ---- Marysville
Marysville ---- Dr. A. L. Miller
Wheatland ---- W. H. Niemeyer

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